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Type II. Pneumococcal Pneumonia

Type II. pneumonia is more severe than Type I. and has a higher mortality. It attacks the adult; it is not so "classical" clinically; it is usually accompanied by profound toxæmia; and it less often ends in a crisis. Out of Cecil's 4310 cases [21] of pneumonia, 991 (23 per cent.) were due to Type II. pneumococcus—46 per cent. of these being under forty years of age. Cole [9] in 1918 gave an incidence of 29·3 per cent., and Park [10] of 15·6 per cent., while Blake [7] reported 13 per cent. in 606 cases. Dible's [12] collected series showed a higher incidence (31·4 per cent.), and the Glasgow statistics [13] for 1930–32 one higher still (35·5 per cent.). The seasonal incidence differs little from that of Type I.

The death-rate (as in Type I.) seems to be lower in this country than in America. Thus the mortalities recorded for untreated Type II. pneumonia by Cecil [21] (441 cases), Park [10] and Cole [9] are, respectively, 48·8, 30, and 28·8 per cent., whereas Cruickshank [13] reported a death-rate in the Glasgow series of 21·5 per cent., and the recent Medical Research Council [14] gave 27 per cent. It is noteworthy that bacteræmia is far commoner in this type: in Cecil's cases it was found in 29·7 per cent. of Type I., but no less than 51·5 per cent. of Type II. There are fewer local complications however. Thus empyemata developed in 6·5 per cent. of Type I., and only in 3·8 per cent. of Type II. In this country Christie [22] has drawn attention to the high incidence of bacteræmia in Type II. infection—28 positive blood cultures in 51 cases.

Only 13 of our cases were Type II. infections, giving a low incidence of 9·5 per cent. :—

Age.	Cases.	Age.	Cases.
10–19	1	40–49	1
20–29	3	50–59	2
30–39	4	60	2

Five of these patients died.

The temperature was not so high and fluctuated more than in Type I., but the patients were nevertheless more ill. They appeared pale, toxic, and disinclined to move; this listlessness was in conspicuous contrast to the "vigorous" reaction seen in Type I. Chart 4 (that of a patient admitted on the sixth day in a very toxic condition) shows only moderate fever, but the pulse and respiratory rate were 152 and 48. Only three of the cases terminated by crisis; none had an empyema.

Agglutinins.—Systematic examination for agglutinins was made in 10 cases, and the results agreed with our findings in Type I. infection—i.e., no agglutinins were detected until resolution was in progress. Agglutinins persisted throughout the period of resolution. In 3 fatal cases none was detected before death, but in these there was no evidence that resolution was occurring.

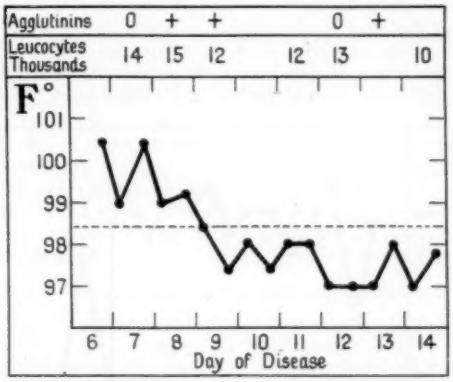

CHART 4.—Type II. pneumonia in a male aged 42.

Leucocytes.—The average leucocyte figure for this type of pneumonia was somewhat lower than in Type I.. Our most favourable and uncomplicated case had the high initial leucocytosis of 33,000. The fatal cases had initial leucocyte counts of 18,000, 16,000, and 12,000. The usual figures ranged between 15,000 and 18,000. It was also noted that the fall in white cells was delayed long after the cessation of fever. Four of the patients who recovered still showed a leucocytosis a week after the temperature had become normal, although no complications were found.

Blood culture.—In 4 cases this was done and found to be negative; one of these patients died.

Serum treatment.—Type II. pneumonia is shown even in this short series to be a more serious disease than Type I., and it is unfortunate that none of our cases were admitted early enough to justify serum treatment. Elsewhere this has not proved so efficacious as in Type I. pneumonia, although Cecil [21] has shown a material improvement in a group of selected cases in which serum was given within the first three days. The largest series treated is that of Cecil:—

	Cases.	Mortality.
Treated	252	40·5 per cent.
Untreated	253	45·8 ,,

When treatment was confined to early cases (first three days of disease) the results were far more promising:—

	Cases.	Deaths.
Treated	21	3 (14·3 per cent.)
Untreated	20	13 (65 ,,)

Statistics compiled by Cecil from other sources show some reduction in mortality.

	Cases.	Mortality.
Treated	232	31·4 per cent.
Untreated	224	43·3 ,,

The Medical Research Council report [14] is also less

* Part I. of this paper was published in THE LANCET last week. Part III., on the Radiology of Pneumonia, will appear in the next issue.

encouraging concerning the response of Type II. to specific therapy :—

	Cases.	Mortality.
Treated	164	20 per cent.
Untreated	305	27 ,,

At present it has not been shown that in this form of pneumonia serum has an effect which will bear statistical analysis. With or without serum it still is a serious disease.

Type III. Pneumococcal Pneumonia

Type III. infection has always been regarded as the most fatal of all. In Cecil's [8] collection of 4310 cases there were 477 due to this type—an incidence of 11·1 per cent. Cole's [9] early series gave a frequency of 13·0 per cent. The British investigators have recorded

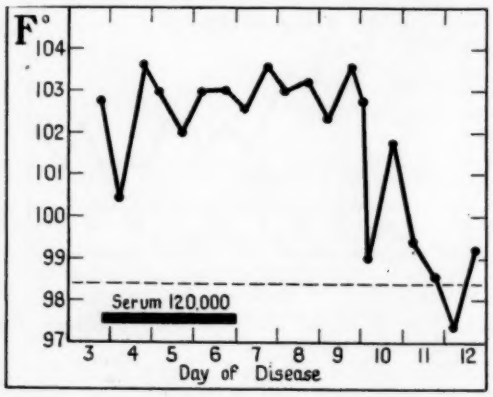

CHART 5.—Type III. pneumonia treated with Type I. serum. No specific effect.

a lower incidence—Dible [12] only 3·7 per cent. in 766 cases, and Cruickshank [13] 3·6 per cent. in 1215 only. Blake, however, in a study of 606 cases showed a high incidence (20 per cent.). In our small series there were 20 cases of Type III., a percentage incidence of 15·0.

The records demonstrate that Type III. is more likely to attack the old than the adult. Of Blake's 122 Type III. patients, only 12 per cent. were between ten and forty years of age, compared with 53·8 per cent. over forty ; whereas in his 194 Type I. patients only 19 per cent. were over forty. The case-mortality of Type III. pneumonia has been given by Cecil as 42·7 per cent., by Cole [9] as 43 per cent., by Cruickshank as 40·9 per cent. and Blake as 44·3 per cent. There is, therefore, no little agreement about the high death-rate. But while it is evident that Type III. is a most serious form of pneumonia, doubt has been cast on the virulence of the organism itself. Blake found that, irrespective of age, in 40 cases free from chronic disease the mortality was only 15 per cent. compared with 56·9 per cent. in another group of 79 who were victims of chronic disease. Blake presents good reasons for regarding Type III. pneumonia as a "highly fatal specific infective disease due, in general, not to a highly virulent organism that attacks and kills a healthy host, but rather to a debilitated host that succumbs to what is relatively a mild infection in the vigorous."

In our series of 20 Type III. infection, 15 were over forty years and 5 under. Of this group 8 died and of these 7 were over forty. Seven were relatively mild cases. The leucocytosis was found to be less than in Type I., the white cell count ranging between 10,000 and 15,000 per c.mm. In cases where the agglutinin content was systematically followed, it was found that in this infection also the agglutinins appeared as resolution phenomena, usually recognisable after a crisis or lysis, rather than coincident with or preceding it.

Of the 8 fatal cases 5 suffered from a chronic chest infection ; these patients were closely questioned and all asserted that they had expectorated a suppurative sputum for years. Four had emphysema and one was a chronic alcoholic ; two exhibited leucopenia. We consider that in this group the deaths were due to the abnormal condition of the chest as much as to the virulence of the pneumococcus.

One of our patients with Type III. pneumonia, a female aged 37, was erroneously regarded as a Type I. infection and was given serum on the third day of disease. In all 120,000 units of serum, and no specific effect was obtained (Chart 5). This case provides an excellent control as to the duration of passively introduced agglutinins. The heterologous agglutinin Type I. was detected within a few hours of the administration of the first 20,000 units of serum (10 c.cm.) and was detectable up to four days after the last dose. The heterologous Type II. agglutinin was not detected until after the second dose of serum had been given and it disappeared somewhat earlier than the Type I. Table VI. shows the fate of the passively introduced agglutinins as well as the development of the natural agglutinins.

TABLE VI.—*Case of Type III. Pneumonia treated with Type I. Serum*

Day of disease ..	3	4	5	6	7	8	9	10	11	12
Units dose of serum (thousands) ..	20	40	40	20	—	—	—	—	—	—
Crisis	—	—	—	—	—	—	—	+	..	..
Type I. agglutinins ..	+	+	+	+	+	+	+	+	0	0
,, II. ,, ..	0	+	+	+	+	+	+	0	0	0
,, III. ,, ..	0	0	0	0	0	0	0	0	+	+

Group IV. Pneumonia

About 30 per cent. of all pneumonias are attributed to "Group IV." Cecil puts the incidence at 33·8 per cent., Cole at 24·6 per cent., Dible at 30·6 per cent., and Cruickshank at 24·7 per cent. The mortality varies from 8·6 per cent. (Glasgow, 1930–32) to 31·0 per cent. (Cecil's Bellevue series). There is little predominance in any decade although it is responsible for pneumonia in children far more commonly than is the Type I. or II. pneumococcus.

In our series, 49 cases fell into this category, and 7 of the patients died, giving a mortality of 14 per cent. The number over and under forty years of age were 17 and 32 respectively, and age appeared to have the same influence in this group as in the specific types. Thus a young subject often showed a high fever, ending with an early crisis and rapid resolution, while the elderly were more likely to have a minor fever, with grave toxæmia, termination by lysis, and delay in resolution.

Anomalous and Mixed Infections

Under this heading we have collected 12 cases which illustrate the difficulty sometimes encountered in making certain of the nature of the primary infecting organism. Because this study is based on cases investigated in a routine manner, with examinations including blood and serum tests as well as typing of sputal cocci, we have come across anomalies and phenomena, some of which have not previously been recorded, and these emphasise the fallibility of sputum examination alone. The series of 12 cases has demonstrated three sources of error.

1. Cases diagnosed as pneumococcal pneumonia which later developed a streptococcal complication (6).

2. Cases diagnosed from the sputum as type infections which later proved to be due to a different type (2).

3. Cases in which there was indisputable evidence that the pneumonic process was due to infection with more than one type (4).

1. *Pneumococcal pneumonia with streptococcal complications.*—Table VII. summarises the salient features of these cases:—

TABLE VII.—*Pneumococcal Pneumonia with Streptococcal Complications*

Case.	Type pneumococcus and prevalence in sputum.	Agglutinins in blood.	Streptococcal complications.	Remarks.
1	Type I. 50 %	Nil	Nephritis.	Strept. in urine.
2	,, I. 30 %	,,	Bacteræmia.	—
3	Gr. IV. 30 %	N. t.	Empyema.	*Hæmophilus influenzæ* in sputum.
4	Type II. 50 %	Nil.	,,	
5	Gr. IV. 80 %	N. t.	,,	
6	Type I. 20 %	Type I.	Meningitis.	—

Gr. = group. N. t. = Not tested.

Each of them at the onset presented definite clinical signs of a pneumonia of lobar distribution—a finding which, supported by the discovery of reasonable numbers of pneumococci in the sputum, is usually sufficient for a confident diagnosis of pneumococcal pneumonia. Yet the subsequent course of the disease made it very doubtful whether the pneumococcus was the primary or main cause of the illness.

It is conceivable that a pneumococcal pneumonia may be capable of lighting up a streptococcal complication. This, we can conclude, is what happened in Case 6, for during the phase of recovery from the pneumonic part of the illness specific type agglutinins were detected in the blood. On the other hand, Cases 1, 2, and 4 never throughout their illness manifested any type agglutinins. It is probable that had Group IV. agglutinins been looked for in Cases 3 and 5 they also would not have been found.

One can only conclude that during influenzal periods, when most of these cases occurred, it is extremely difficult to say with certainty which of the organisms in the sputum is the cause of a pneumonic process. Experience shows that streptococcal bronchopneumonia is the commonest sequel of influenza. Our cases tend to emphasise the difficulty of diagnosis from sputum alone, and to suggest that pneumococcal antiserum should be given with caution during an influenzal epidemic.

2. *Cases diagnosed as a type infection which later proved to be of different type.*—The two cases classed under this heading are not simply examples of error in typing the sputal coccus, for the direct test was confirmed by mouse inoculation and culture. Both cases had plentiful Group IV. pneumococci in the sputum and both developed strong specific type agglutinins in the blood-serum during the recovery and resolution period, the one Type I. and the other Type III. From our previous experiences we can only conclude that these cases were really Type I. and Type III. infections despite the indeterminate content of the sputum. It is probable that this kind of case is rare. Both were extremely mild and there was very little expectoration.

3. *Cases in which the sputum contained more than one type of coccus.*—It is usually believed that in any particular case pneumococcal pneumonia is caused by only one strain of pneumococcus. We met with 4 cases, however, in which the sputum contained two types of cocci, and in 3 of these the blood-serum during the resolution period contained strong agglutinins for both cocci. This we consider is indisputable evidence that both types of cocci were concerned in the pneumonic process. The facts concerning the four cases are summarised in Table VIII.:—

TABLE VIII.—*Cases with Two Types of Cocci*

Case.	Cocci in sputum.	Agglutinins in blood.	Remarks.
6	Types I. and II.	Types I. and II.	—
7	,, I. and II.	,, I. and II.	Sterile pleural effusion.
8	,, I. and III.	,, I. and III.	—
9	Type III. and Group 4.	Not tested.	Died.

It is of interest that in Case 8 the Type III. cocci were not isolated from the sputum until late in the disease. Their presence had not been suspected until a test during the resolution period showed that the serum contained Type III. as well as Type I. agglutinins, and re-examination of the sputum by platings from the peritoneal cavity of a mouse then revealed the hitherto unsuspected Type III. coccus. This case is instructive; it is conceivable that a pneumonia due to Type I. can be overcome with serum, and yet the patient perish from Type III. toxæmia.

Laboratory Estimates of Immunity

The basis of the specific treatment of lobar pneumonia is the administration of a serum whose potency is estimated by its ability to protect mice against living and virulent pneumococci. Any simple method of demonstrating that a human serum contains the same protective substances should be of value both for prognosis and as an indication for continuing or stopping serum therapy. It is unfortunate that at present the only reliable methods for estimating the potency of an antipneumococcal serum involve the use of large numbers of mice as well as a delay of several days. Such methods are not therefore applicable to the control of human cases except in the academic study of a small series. The antibodies which may be studied include agglutinins, precipitins, and substances which will bring about the protection of a mouse. The general resistance is indicated by the leucocyte count.

Leucocyte count.—As already stated, we have found that a daily leucocyte count is very valuable for estimating general resistance and prognosis. Initial high counts (20,000–30,000) are obtained in all cases that are likely to recover; a normal count or a leucopenia in the invasive phase of the pneumonic process is an ominous sign. Coincident with the crisis there should be a dramatic fall in the leucocytes; when this does not take place complications may be anticipated.

Agglutinins.—It has often been pointed out that the agglutinin titre is not a reliable indication of the true protective power of the serum as estimated by the mouse-protection test. This inconstancy was first described by Avery, Chickering, Cole, and Dochez[23] in 1917, and has been confirmed by, among others, Parish,[24] who found a discrepancy between the agglutinin content of three samples of serum and their power of protecting mice. Yet, Cole and his colleagues,[23] in 1917, in their study of the agglutinin content of empyema fluids and the blood-serum of animals and human beings heavily infected with pneumococci, found that agglutinins were absent where infection was overwhelming, and attributed their absence to neutralisation and inhibition of pneumococcal antibodies by soluble substances produced by the bacteria themselves. They believed that the "specific soluble substance" of the pneumococcus was capable, when excessive, of neutralising all types of pneumococcal antibodies.

The test for agglutinins is easily performed. Take three drops of the patient's serum and add to each drop a small quantity of a thick emulsion of the specific type pneumococcus: agglutination occurs rapidly and can be observed with the low power of the microscope. This simple qualitative detection of agglutinins is all that is required; there is no advantage in performing a quantitative test. We have systematically studied the agglutinin phenomenon at various stages of the disease and have also attempted to use the agglutination test as a basis for serum dosage.

Sabin,[20] using a staining method, found that agglutinins for the homologous organism were quickly absorbed after injection of serum and were not detectable in the peripheral blood until either an excess had been passively administered or the patient had started actively to make his own. The heterologous agglutinins, on the other hand, were easily detectable soon after the injection of serum. Sabin claimed therefore that after serum injection disappearance of agglutinins indicated the specific type of the organism, and also that serum should be given until agglutinins were detectable. With these conclusions, as pointed out in Part I., we have been unable to agree. The detection of passively introduced agglutinins in the peripheral blood has appeared to be purely a resultant of the amount introduced rather than the amount absorbed. The following titration will make this clear:—

The agglutinin content of a given sample of Felton's serum was found to be: Type I., 1 in 1200, Type II., 1 in 80, by the macroscopic method, and by the more sensitive microscopic method Type I., 1 in 2400; Type II., 1 in 320. Dilutions of the Felton's serum were made with fresh normal human serum. When 10 c.cm. of serum are injected intravenously they are promptly diluted 500 times by the volume of the circulating blood. Unless therefore an agglutinin titre exceeds 1 in 500 it will not be detectable when 10 c.cm. of serum are injected.

Owing to the low titre of the Type II. agglutinins it is not often possible to detect them in cases of Type I. pneumonia unless a considerable volume of Felton's serum has been used.

During our investigations we have performed some 3000 agglutinin tests and conclude that agglutinins are abundantly produced in association with the process of resolution after the crisis. Before the crisis they are not detectable, and after it they are no indication that a case will be free from a relapse or complication. We do not regard them as any evidence of the sufficiency of serum therapy, and they are certainly not an indirect indication of type as suggested by Sabin.

Summary and Conclusions of Parts I and II

The examination of a case of pneumonia nowadays is incomplete without the typing of the infecting pneumococcus; we agree with Cecil that it is now far more important to know the type of pneumococcus in a case of pneumonia than it is to know what organism of the *coli*-typhoid group is responsible for an enteric fever. Typing of the pneumococcus has entered the field of necessary clinical pathology.

Gradually data are accumulating which will help to give each type infection a defined clinical picture. We have been impressed with the distinctiveness of some of our cases, and an attempt has been made, in describing our findings, to show the features typical of each. Further work is necessary in this country, for type-incidence has not been studied here as extensively as in America.

While it is now possible to type a pneumococcal sputum within two to three hours, and sometimes directly within a few minutes with reasonable accuracy, it must be emphasised that this can never be regarded as a bedside procedure. Much experience as well as good laboratory equipment are essential. It is unfortunate that attempts to type the sputum in the earlier stages of pneumonia are often far more difficult than in the later stages, and this is an important practical point. At the sixth or seventh day the sputum often yields a pure culture of the pneumococcus and the typing is easy; but during the first and second day—at the time when specific treatment gives best results—the sputum is sometimes less abundant. Furthermore, we have recorded cases in which there was reason to believe that the pneumococcus in the sputum was not the organism responsible for the underlying lung infection, and we have also described cases in which two distinct types seemed to be responsible. Again, some patients with all the signs of pneumonia produce a sputum devoid of pneumococci. Although these and other difficulties will arise from time to time, the determination is usually not difficult, and the organism found in the sputum will probably be the one responsible for the pneumonia.

Serum therapy in Type I. pneumonia has unquestionably proved, within certain limitations, to be both specific and effective. Even our small series convinces us of its advantages—and we deliberately selected the cases we regarded as the most serious. All are agreed on the beneficial effect obtainable when Type I. serum is given within the first three days of the disease, and some have indeed claimed an abortive effect if serum is given thus early. Although it would be bold to claim that serum is responsible for a crisis when administered later than the fifth day, we included among the more severe cases three whose condition we held to be desperate on the sixth day, and clinically we could only conclude that they too were benefited. The possibility of serum sickness should not prevent the giving of serum to a patient in need of the exploitation of every remedy. Our incidence of serum sickness has been somewhat high, but this was probably due to the particular batch of serum employed.

It would be a great gain in practical therapeutics if patients with Type I. pneumonia who need specific therapy to realise a crisis could be readily distinguished from those who will come safely through without any specific measures. Unfortunately there is no single test that we can rely on for this purpose. To treat all patients showing lobar consolidation with Felton's serum on the chance of striking a Type I. or II. infection is unnecessary as well as costly; indeed, such a practice might do more harm than good. It is also unwise and unnecessary to treat all Type I. infections with serum, for we know that the mortality of the untreated case is low. Hence if the case shows favourable features we are justified in withholding specific measures, and we have come to regard the following as favourable criteria: an age under forty; freedom from past chest disease and signs of bronchitis and emphysema; a normal blood pressure; and a good initial leucocytosis. On the other hand, if the patient is over forty, has long-standing chest disease, shows arterial hypertension, or has a leucocytosis below 15,000, we should feel that serum therapy was desirable. Signs of a severe infection, such as massive consolidation, cyanosis, or profound toxæmia, would always call for specific measures, irrespective of the patient's age. Mortality in Type I. pneumonia is much higher at ages over forty, and it would be a good practice to give serum to everyone above that age

suffering from such infection, even though the state at the onset was reasonably good. It is often impossible during the first two or three days to forecast the course, and unfortunately from the standpoint of active therapy this is the period when an accurate prognosis is most needed.

Our experience shows that arterial hypertension adds much to the gravity of pneumonia, while chronic respiratory disease is another important factor, especially in Type III. infections. In Type I. or II. pneumonia with either of these complications there is accordingly a relatively greater need of serum.

In judging the progress of a pneumonia, a simple leucocyte count seems to us to be the most informative test, provided it is done repeatedly. Thus an initial count of 20,000–30,000 per c.mm. carries a good prognosis, but leucopenia or a normal count in association with signs of pneumonia is of very grave significance. A sudden fall in leucocytes usually accompanies a crisis and heralds a convalescence free from complications. On the other hand, a leucocytosis persisting in spite of a crisis, a normal temperature and pulse, is usually the forerunner of a complication.

The facilities at our disposal did not allow us to perform daily blood cultures, but cases in which an initial culture was positive did not appear to have a less favourable outcome than those in which it was negative. As to the phenomenon of agglutination which many observers have used to assess the amount of serum required, we have found no evidence that it is useful for this purpose. This reaction was to us of little clinical value. It is well known that the agglutinin content is no reliable guide to the protective power of a pneumococcal serum, and in our experience the presence of agglutinins is no indication that a case will be free of complications.

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SEPSIS AND THE SKIN *

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SEPTIC affections of the skin are worthy of more attention and better treatment than is generally bestowed upon them. We usually know the cause of these troubles which are completely displayed to our view, and we might therefore expect to be able to apply direct and effective treatment. Instead, we find that fashion and fad often govern much of our practice, and there are as many medical and quack remedies for such simple infections as boils and impetigo as we might expect for an obscure and hopeless disease of unknown ætiology. This is not greatly to the credit of our profession. Like many other matters, these common dermatological ills of everyday practice are brought too little before the student in training by his teachers, they rarely get beyond the casualty departments of hospitals, and when they have become serious they often pass straight to the surgeon whose dermatological knowledge is not his strongest claim to fame.

I wish first to draw attention to a few practical points in regard to the common simple skin infections, and later to try and throw a little light on some of the more complicated and difficult infective dermatoses.

Simple Infections

Impetigo.—A superficial streptococcal infection is often secondary to parasites, particularly to pediculosis capitis, in children. It may be superimposed on some itching dermatosis, or may be dependent upon fissures or other foci of streptococcal infection. These should be sought first and not last. Impetigo is a vesicular and bullous eruption, and it is therefore irrational to treat it with a white precipitate or any other ointment. An ointment cannot intermingle with the infected fluid, and will ride on that fluid instead of sitting on the infected surface. Treatment should be by means of a paste which absorbs the infected fluid, and so comes into direct contact with the infected surface. The paste should contain a mild antiseptic and a little salicylic acid to dissolve scabs, and such a preparation as the following will cure impetigo in a few days—far more readily than any other measure and with the minimum of effort: ℞ Hyd. Ammon. gr. x., Acid. Salicyl. gr. x., Zinc Oxide gr. cxx., Amylum gr. cxx., Paraff. Moll. ad oz. i.

Fissures are the seat of streptococcal infections, but fissures are rarely primary. When they are so, they readily respond to simple cauterisation with silver nitrate or chromic acid, provided this is done thoroughly. Fissures are, in the great majority of cases, secondary to eczema or other skin disorders, and disappear without any specific treatment for the fissures if the underlying eczema is treated. Thus, a little white precipitate in a tar ointment or X ray therapy will more commonly clear, and clear permanently, the fissuring behind the ears, in the flexures of joints, between fingers, and on the palms, than will cauterisation.

Fissures between the toes are almost invariably due to ringworm infection, and the chronic eczematisation which often accompanies that infection. Treatment to be effective must—and need only—consider such mycotic and eczematous disease. Whitfield's benzoic and salicylic and, later, tar ointments are indicated here.

Fissures about the angles of the mouth and nose mean intranasal, sinus, or dental infection or irritation, in the great majority of cases. Sometimes, when thorough examination reveals no such infection, it will be found that such fissuring has been dependent upon an unerupted wisdom tooth. It must not be forgotten, however, that chronic fissures at the angles of the mouth are often symptomatic of gastric and blood diseases, particularly of achlorhydric anæmia. Fissures are symptomatic and not primary, in spite of the fact that they can themselves give rise to very serious secondary troubles, as lymphangitis, adenitis, abscesses, elephantiasis, erysipelas, and septicæmia.

That erysipelas is a streptococcal dermatitis is certain, but whether there is a specific erysipelas streptococcus responsible for those spontaneous, often serious, contagious cases which sometimes give rise to epidemics as opposed to the erysipelas which is obviously secondary to other streptococcal lesions is not clear. That the picture of erysipelas, often recurrent and eventually giving rise to some lymphatic blockage and elephantiasis, can arise secondary to a streptococcal fissure infection, to intranasal or other underlying streptococcal disease and to surgical operation, is certain. This type, usually quite mild, but occasionally severe and markedly pyrexial, does not appear to be so contagious or to give rise to epidemics. The old treatment by ichthyol locally,

* Based upon lectures given at a post-graduate demonstration at Leeds (March 12th, 1935) and at Grimsby (March 20th, 1935).

eliminative measures, and antiserum therapy would appear to have justified itself.

The treatment of cellulitis and abscess formation does not call for comment from me except to recall the value, in the later stages, of general ultra-violet light therapy, which is not practised sufficiently. The very great value of cod-liver oil to restore the balance between connective tissue and epithelium should be stressed; nothing favours the control of granulation tissue—probably by epithelial stimulation—and the efficient healing of granulating wounds (especially when tendons are exposed) as the application of this drug itself, or in glycerin, or in a simple ointment. In this connexion also radiant heat therapy and occlusive elastoplast bandages have a place.

Whitlows.—Dry heat is always better than wet, macerating heat, and finds an important place in the treatment. The minimum of surgical interference is desirable; extensive incisions, squeezing, probing, scraping, dilatation with sinus forceps, cauterisation, packing with antiseptics and such violent, primitive, and barbaric measures, which can be witnessed daily in most casualty departments, should be forbidden. Radiant heat, occasional swabbings with a *mild* antiseptic lotion, rest, and a simple and reasonable incision when the lesion is pointing is indicated. If fomentations are employed, they should be applied every ten minutes for an hour, and should not be covered with oiled silk, which favours maceration. Such a session of fomentations—perchloride fomentations preferably—may be repeated once or twice a day, the part being swathed in sterile, dry dressings between such treatments. Soaking in hot lotions is desirable, however, when such lesions are discharging; occasional immersion for short periods in a peroxide bath may be permitted, but should not be continued for long.

Septic perionychia is characterised by the painful bolster swelling of the nail-fold from which pus can be expressed. It must be differentiated from ringworm and monilia infections, which are dry or almost dry and little if at all painful. Septic perionychia should never be treated surgically; avulsion of the nail, lateral incisions, and the turning back of a flap of nail-fold are quite unjustifiable under any circumstances. The acute phase should be treated along the same lines as a whitlow, with the addition of small doses of unfiltered X rays. The chronic affection will always respond to packing of the perionychial sac with a wisp of cotton-wool soaked in pure carbolic (it is packed into the sac by means of a match stick sharpened to a wedge-end) and subsequent X ray therapy. Apart from such treatment the part must be kept dry and warm. One or two such treatments will suffice to cure the condition, cure being manifest in obliteration of the sac so that the nail-fold again adheres to the nail-plate.

Failure to cure the condition by such means indicates that some underlying predisposing cause of the perionychia has been overlooked and, as with fissures, perionychia is very often a secondary and not a primary condition. Predisposing causes are poor peripheral circulation, which can often be improved by thyroid therapy, and anæmia, which calls for tonic treatment. The perniosis predisposes partly by reason of impaired nutrition, but mainly because of the degree of chronic œdema of tissues which accompanies it and the hyperidrosis, both tending to devitalise the skin and favouring separation of nail-fold from nail-plate. It is natural, therefore, that occupations which involve immersion of the hands in water, with similar maceration of the tissues, should also predispose to perionychia. Septic perionychia is commonly staphylococcal in origin, though it may be streptococcal or may be due to other and mixed infections.

To understand and treat the skin efficiently, we must always be prepared to read into skin manifestations the indication of some underlying local disease, or of some general constitutional derangement. It is in this way that a knowledge of skin diseases becomes invaluable to the observant physician and surgeon; treatment becomes rational and good results are obtained. We should learn much more about our patients could we cultivate this habit, and we should find the skin not only more amenable to our attentions, but of fascinating interest and instructive.

Boils and Carbuncles

In turning to the staphylococcal infections of the skin, my suggestions for more restraint in surgical approach must become a plea for complete restraint. The pustule, the boil, and the carbuncle should never be subjected to surgical trauma, but should be nursed with a masterly inactivity throughout, rather with the physician's than the surgeon's outlook. I regard the crucial incisions, scrapings, packings, and excisions practised by my energetic colleagues with horror.

The simple superficial pustule demands to be left alone, and to be sealed-in with collodion is the best treatment. A mild antiseptic lotion as 1–2000 hydrarg. perchlor. may be swabbed round the affected part. If there is much inflammatory exudate round the pustule, or if there is some necrosis of tissue and formation of a slough, an occlusive dressing of the elastoplast type is more comfortable. In either case, the application is left in place for several days until the condition has subsided. Rest, dry heat, tonic therapy, or other symptomatic measures may be indicated.

For extensive areas of superficial pustules—so-called Bockhart's impetigo—painting with malachite-green is invaluable and causes no irritation. ℞ Hydrarg. Perchlor. ½ per cent., Brilliant Green ½ per cent., Indust. Spirit. 99 per cent. For larger boils with any considerable degree of slough and pain, dry heat, or sessions of fomentations as previously described, or better than either, compresses of carbolic in glycerin 1 in 8 may be applied.

With carbuncles exactly the same line of treatment is required, except that the patient must be at rest in bed and X ray therapy must be administered. X ray therapy is the ideal measure in the treatment of all forms of staphylococcal infection of the skin and may be used with the greatest advantage for pustules and boils, and especially for boils situated about the face and in moist flexures like the axillæ, where control of spread is difficult, and in cases of chronic furunculosis. But though we may, more often in the milder cases, choose to dispense with this measure upon occasion, we should never omit X ray treatment in any case of carbuncle, mild or severe. This has been recognised by many for years, yet surgeons continue to attack carbuncles with the knife and rarely consider this specific measure. X ray therapy should be given in fractional dosage with unfiltered X rays, one to three treatments being necessary. It is possible that staphylococcal toxoid may be a second essential weapon in this attack upon the staphylococcus, but it has not yet been put sufficiently to the test of time.

There are many minor but important points concerning these follicular infections which I should like to touch upon, though in dealing with predisposing and other factors I may seem to have left till last what should have come first. I have done that because I wished to dismiss first the local treatment, which is so important, which is the same for the whole group and which, as I have tried to stress, is allowed quite

improperly and harmfully, to be surgical and interfering instead of medical and restful.

With these infections we too often concentrate upon the skin treatment, even in chronic cases, when we should be seeking and treating the cause of the chronicity. The cause may, as with streptococcal infections, be dependent upon parasitic or other skin disease, irritation or friction, maceration of the skin with natural sweat (as in the axilla) or grease (as in the seborrhœic), or maceration following employment involving contact with water or grease. Chronicity may be due to reinfection from some focus of staphylococcal infection in the nose, mouth, throat, or ears, from a perionychia or sinus. Itching and the consequent rubbing and scratching may be the cause of persistent furunculosis, and is seen about the neck, the perineum secondary to pruritis ani, and over the fronts of the thighs from the rubbing of the contents of trouser pockets. An important aggravating factor, and a cause of spread and chronicity, is fingering and squeezing of boils by the patient, and the carrying of infection to other parts of the body on the fingers. Patients should be told to leave their lesions alone, and to wash their hands in an antiseptic after touching the skin. A prescribed ritual in this matter will tend to stop the habit.

Just as I have made no mention of the use of the knife in this connexion, so I would omit reference to the hundred and one remedies recommended for the treatment of boils in the medical and lay press. I have tried to show that while their existence and advocacy does not reflect to our credit, they are likewise quite unnecessary and without serious value. That does not mean that any indications for general symptomatic treatment should be neglected; it is merely the suggestion that tin or yeast or manganese or vaccines and such-like are the cure or even the rational line of attack against which I rebel. Patients with chronic sepsis of this type are often debilitated, have mouth or nose sepsis to be treated, require attention to their diets and to gastro-intestinal function. This is particularly true of the seborrhœic who, with his greasy skin, is specially susceptible to infection, and who is particularly prone to suffer from iron and vitamin deficiency. Similarly, we must not omit to examine the urine and to review a case showing glycosuria.

Infective Seborrhœic Eczema and Sycosis

In the more complicated septic skin conditions I would suggest a direct causative relationship between these and nose, throat, and mouth sepsis. I refer to the so-called "infective seborrhœic eczema" of the head and face and "seborrhœic sycosis." Either of these may be associated with spread to other parts of the body, particularly flexures, but such spread is dependent upon the head infection and will disappear if that is cured.

In a typical case the red, glazed scalp is covered with a multitude of small green and yellow, foul-smelling pustules, readily scales, scabs, and cracks, and the greatest care in cleaning up the scalp is followed in a few hours by a fresh layer of pustules and scabs. The ears are involved and are fissured, the eyebrows are scabbed, the eyelids are red, granular, and everted, the nares and mouth are often sore and cracked. The red, sullen inflammation may spread over face and neck on to the shoulders, under the breasts, groins, axillæ, elbows, knees, always with a red, glazed, oozing, pustular, scabbed and cracked, foul, and painful inflammation. This is the complete picture, though any one part may exist alone, such as the scalp or ear affection, the blepharitis or affection of the muzzle area or of flexures. In the adult male the same condition is seen as seborrhœic eczema and sycosis involving hair margins, eyebrows, beard, and moustache. The condition occurs at any age and is often seen in quite young children and adolescents. This group is one which holds more ghosts for dermatologists than any other; they haunt him and his department often for a lifetime. They sometimes drive him to such extremes as the deliberate production of radiotherapeutic atrophy, which itself is distressing, and occasionally these patients will take their own lives, preferring death to the perpetual hell of existence under such a scourge.

The affection itself is peculiar in many features. A little consideration would suggest that it could not be a primary skin infection such as is generally believed, and none of the ideas put forward to explain the ætiology and pathology of the condition are in the least satisfying or convincing. Such patients may be given the greatest care as in-patients in hospital for months or years, and the same foul, septic, glazed, repulsive state persists or increases. That is not the behaviour of a primary skin infection, particularly a primary pyogenic infection. These patients, as a whole, and not only their skins, are particularly susceptible to infection. Thus, they have infected noses and accessory sinuses, tonsils, gingivitis, decayed and septic teeth. They also suffer respiratory and gastro-intestinal infection, but less readily than skin, nose, and throat infections. As part of the constitutional predisposition there is anæmia, often well marked, and avitaminosis and general physical debility and malnutrition. This is due, no doubt, to gastro-intestinal "seborrhœic" debility with its flatulent dyspepsia, constipation, and consequent impaired absorption.

The first essential to grasp is that this is a general and not merely a skin problem and may call for surgical, dietetic, iron, and vitamin as well as skin therapy. The second and more important fact is that the nose and throat and skin infections of head and face are not merely associated symptoms. The one is the cause of the other. The infected eczema or sycosis is directly provoked by the sinus or mouth infection. This is not a question of focal sepsis and secondary toxic manifestation; it is the direct anatomical relationship that matters, so that an infected right antrum will produce a right-sided sycosis and blepharitis, and ethmoiditis will produce an infective seborrhœic eczema of scalp, and a one-sided scalp infection will be related to an otitis media or dental sepsis on the same side. The unilateral cases are most striking, and first drew my attention to the causative relationship of the sepsis.

Surgical treatment, generally the opening and drainage of an infected antrum, is indicated as soon as the nasal or mouth sepsis is located and is usually followed by dramatic clearance of the eruption. The resistance of some patients may be so depressed that they are unable to eradicate the trouble in spite of this surgical help, and in these cases the greatest attention must be paid to diet and care of bowels; iron and vitamin therapy are necessary and the most vitalising of all measures, general ultra-violet light therapy, is given daily. By these means the most reluctant intranasal sepsis can usually be subdued, and when that is achieved the skin clears. These patients naturally require to be kept under supervision—particularly with regard to their diets, general nutrition, and health—after they are cured, for they often return to environments which would readily reproduce the old conditions and favour repetition of the round of infection.

It is interesting to note that occasionally dental or nasal infection will be directly related to the localisation and persistence of lupus erythematosus which will clear with drainage of an antrum and relapse temporarily with subsequent temporary infection of the antrum with a "cold in the head." A similar association is occasionally seen between nose and mouth sepsis and the more pustular forms of acne and of rosacea of the face. Cases which have completely resisted ordinary measures may clear dramatically when such underlying infection has been found and removed.

I have endeavoured to restrict my observations to those aspects of the subject which are of daily and practical importance, and for that reason I have made no reference to the less common pyogenic dermatoses, or to the rare toxic and allergic manifestations of focal or other sepsis.

A NOTE ON
FERRY'S MENINGOCOCCUS ANTITOXIN
IN THE TREATMENT OF ACUTE CEREBRO-SPINAL FEVER

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In 1931 Ferry, Norton, and Steele[1] found that filtrates from young cultures of the four recognised Gordon types of the meningococcus contain extracellular toxins specific to the four types, as well as a toxin common to all types; and, further, that animals injected with the toxins of the four types develop, respectively, antitoxins specific to the homologous toxins, as well as antitoxins which will neutralise the heterologous toxins. These workers claim that a polyvalent antitoxin can be prepared containing immune bodies specific to the four individual toxins.

Later, Ferry[2] showed that such an antitoxin, prepared from the horse, protected guinea-pigs prophylactically and therapeutically against fatal doses of live cultures. It was also shown that regular antimeningococcic serum prepared as an antibacterial serum by immunising the horse with the same live cultures of the four Gordon types failed to protect in like manner when used either as a prophylactic or therapeutic measure.

Further experiments by Ferry[3] indicated that the symptoms of meningococcus cerebro-spinal meningitis in laboratory animals are due in large part to the action on the central nervous system of a soluble specific toxin elaborated by the meningococcus, and that these symptoms can be modified or entirely prevented by the neutralisation of this toxin with a specific antitoxin. In a particular experiment, meningococcus toxin, when injected intracisternally into nine monkeys, produced symptoms similar to those found in meningitis following experimental inoculation of monkeys intraspinally with the live meningococcus. The symptoms of meningitis so produced by toxin may be greatly allayed or modified by mixing the toxin in proper proportion with its specific antitoxin before injection. A further point in favour of the direct relationship of this soluble toxin to the symptoms of meningitis—at least, in monkeys—is the fact that recovery from previous intracisternal injections of this toxin induced a state of active immunity against the killing dose of the live meningococcus inoculated intraspinally.

Ferry's work, if confirmed in all essential respects, would appear to provide a basis for: (1) the preparation of a polyvalent antitoxin of higher therapeutic potency than regular polyvalent antimeningococcus serum prepared from the same strains, and (2) the use of such antitoxin intravenously as well as intraspinally in order to neutralise the circulating and other toxin produced in the course of the disease. Serum has been used intravenously in cerebro-spinal fever in recent years both in America (e.g., by Carbonnell and Cook[5]) and in this country by Banks.[6]

A TRIAL OF THE METHODS

Since November, 1933, at the request of the Ministry of Health, a number of cases of cerebro-spinal fever have been treated with Ferry's meningococcus antitoxin in certain hospitals of the London County Council. Owing to the low prevalence of the disease in London during this period, the series so treated is far too small for satisfactory statistical analysis, but it is felt that a preliminary statement from a clinical point of view may, at this stage, afford some guidance to other workers in this field.

Cases of cerebro-spinal fever treated during the period at the Park Hospital, London, fall into two groups:—

(A) Thirteen cases treated with Ferry's meningococcus antitoxin (M.A.T.). This was the treatment of choice, and was employed whenever a supply of antitoxin was available.

(B) Eleven cases treated with a regular polyvalent antimeningococcus serum (A.M.S.) of British make. These were the cases which were admitted during various intervals throughout the period when a supply of Ferry's antitoxin was not available.

Table I. summarises the essential information about the two groups, omitting 3 cases fatal within 24 hours of admission. It will be seen that the two groups are reasonably comparable as regards age-grouping, sex, day of disease on admission, bacteriological type, and method (routes, amounts, &c.) of specific treatment. Group B shows a rather greater proportion admitted at a more advanced stage of the disease (i.e., beyond

TABLE I.—*Summary of Cases and Results*

A = Meningococcus antitoxin. B = Antimeningococcus serum.

—	A	B	—	A	B
Cases treated ..	12	9	Clinical type—		
			Acute fulminating	8	4
Age grouping—					
0–1 year ..	—	1			
1–5 years ..	4	4	Results—		
5–10 ,, ..	4	1	Recovered ..	9	4
10–20 ,, ..	1	—	Died	3*	5†
20–30 ,, ..	3	3	Sequelæ	3	—
Male	7	5			
Female	5	4	Routes of injection—		
			Lumb. cist. venous	8	4
Day of disease on admission—			Lumb. cist. venous and ventric. ..	2	2
1st–3rd	6	3	Lumb. venous. ..	2	1
4th–7th	6	5	Lumb. cist. ventric.	—	2
8th	—	1			
Ascertained bacteriological type—			Dosage (c.cm.)—		
Group I... ..	8	5	Maximum ..	495	440
Group II. ..	2	1	Minimum ..	155	123‡
			Mean	294	249

* One each cist. hæm.; Type II.; inadequate treatment.
† One within 48 hours of admission.
‡ Excluding one death within 48 hours.

the third day). On the other hand, 8 out of 12 cases in Group A were intensely acute or fulminating on admission, while in Group B only 4 out of 9 could be described in the same terms. The slight loading of Group B with "late" cases is thus perhaps compensated by the loading of Group A with more acute cases. Further, it appears reasonable to exclude from the deaths in Group A a case in which death on the eleventh day of treatment was shown to be due to cisternal hæmorrhage, the meninges being clear of exudate; and one from Group B in which the patient was almost moribund on admission and died within 48 hours. The net result of these exclusions is to yield

two reasonably comparable but very small groups, with the following mortality:—

Antitoxin series: 2 deaths from meningitis out of 12 cases.

Serum series: 4 deaths from meningitis out of 8 cases.

Although no conclusion can be drawn from such figures, there are several clinical considerations which strengthen the suggestion contained therein that the antitoxin may be somewhat more potent therapeutically than regular polyvalent serum, at least, for Group 1 infections. Thus, of the two deaths in the antitoxin series, one patient was admitted at the beginning of the investigation before the appropriate dosage of the antitoxin had been worked out. This patient received only four treatments, each consisting of 15 c.cm. intraspinally and 35 c.cm. intravenously, one on the day of admission, two on the following day, and one on the third day after admission, a total of 200 c.cm. Antitoxin treatment was then stopped, although the cerebro-spinal fluid was not clear. In the light of subsequent experience, it is believed that such dosage was inadequate. All subsequent cases received intensive dosage more or less conforming to the scheme shown in Table II.

TABLE II.—*Scheme of Intensive Serum Treatment*

Day of treatment.	Serum (in c.cm.).		
	Lumbar.	Cisternal.	Venous.
1st	15–25	—	80–150.
2nd	15–25	15–20	80–150 severe cases.
3rd	15–25	15–20	50–100 most severe cases only.
4th	15–25	15–20	—
—	C.S.F. clearing and sterile.		C.S.F. not clearing or organisms present.
5th	Lumb. punc. only.		15–25 c.cm. lumbar.
6th	,,		15–25 c.cm. ,,
On 5th–7th (approx.).	Nil.		Double ventricular puncture and serum.
8th	,,		,,
9th et seq.	Occasional lumb. punct.		Daily lumb. punct. 1 to 2 weeks.

C.S.F. = Cerebro-spinal fluid.

The other death in the antitoxin series was a case of Type II. infection in a child two years of age. This case appeared to make no effective response whatever to the antitoxin applied as in the above scheme. It is the only one in the series of which this could be said, although the series included another case of Type II. infection in a lad of seventeen.

A striking clinical fact was the rapid recovery made by several desperately acute cases in the antitoxin series. Five of these patients had hæmorrhagic rashes. One was seen by an experienced observer just before admission, and the prognosis given was "probably about 12 hours to live." He recovered with the sequelæ of unilateral deltoid paresis and atrophy. One, with an illness of acute fulminating type, recovered quickly, but with the sequelæ of absolute (nerve) deafness, which appeared to be present from the time of admission. One, a hæmorrhagic case, recovered rapidly, but with the sequelæ of squint and nystagmus, which was present from a very early stage. It is not improbable that paresis present from an early stage, as in these cases, indicates a dangerous degree of meningeal involvement.

On the other hand, there are two factors which tend to offset the favourable results in this small series: (1) the absence of cases under the age of twelve months, which generally have a high rate of mortality; and (2) the small proportion of bacteriological Type II. infections which generally show a poorer response to treatment than Types I. and III.

OTHER RESULTS IN LONDON

By the courtesy of Dr. E. L. Sturdee, of the Ministry of Health, I am able to refer to cases treated in other London hospitals by meningococcus antitoxin—viz., at the North Western Hospital, Hampstead, 6 cases with 2 deaths; and at Brook Hospital, Woolwich, 7 cases with 3 deaths.

I am indebted to Dr. Alexander Joe, medical superintendent of the North Western Hospital, for details of his cases, from which it appears that both deaths were cases of Group 2 infection, one aged six months and the other aged twenty years. Three of the four recoveries were cases of Group 1 (Type I. or III.) infection, and in the fourth case the type was undetermined. The two fatal cases each came under treatment on the fifth day of the disease, and the recovered cases on 1st, 3rd, 3rd, and 5th days respectively. The ages of the recovered cases were 4, 13, 13, and 21 years respectively. In addition to the above, Dr. Joe treated two cases as controls during the period with a regular polyvalent meningococcus serum, the result being that one patient, aged thirty-five, treated from the second day of disease, recovered; and the other, aged twenty-one, treated from fourth day of disease, died. It is of particular interest to note that all cases treated by Dr. Joe had intensive treatment—i.e., twice daily spinal serum during the early acute stage, and also intravenous serum in rather smaller dosage than that given at the Park Hospital.

I am indebted to Dr. J. V. Armstrong, medical superintendent of the Brook Hospital, for details of 7 cases. Six of these were cases of Group 1 infection, the type in the other being undetermined. The fatal cases were aged 2, 19, and 24 years, and were admitted on 2nd, 2nd, and 3rd day of disease respectively. All three were Group 1 infections. The four patients who recovered were one aged seven months and three young adults. The method of treatment at the Brook Hospital was less intensive than at the Park and North Western Hospitals, that is, on the more conventional lines of once daily spinal serum combined with intravenous serum.

To sum up, we have a record of 25 cases treated with meningococcus antitoxin in London, with 7 deaths from meningitis and 1 death from cisternal hæmorrhage, the meningitis having cleared up. Four of the patients were known to have Group 2 infections, and 3 of these died. The case-fatality rate in the series is just slightly better than the standard 30·9 per cent. death-rate given by Flexner[7] for his large and varied collection of serum-treated cases up to 1913. Clinical considerations, however, suggest that the antitoxin used in intensive dosage is particularly valuable in Group 1 infections.

Note on CISTERNAL AND VENTRICULAR PUNCTURE

One of our cases provided a valuable lesson on the danger of hæmorrhage from cisternal puncture in an irritable and struggling patient. The anæsthetic used up to this time was local, combined with morphine hypodermically, but this was insufficient to prevent a dangerous degree of movement while the needle was being inserted. As it happened, also, the needle used in the case was a lumbar puncture needle, gauge 16, which is the largest of the three sizes usually supplied. Considering the vascular nature of the membrane lining the cistern when acutely inflamed, it appears desirable to use the finest bore needle made for the purpose (viz., gauge 18). The needle should be sharp and be graduated in centimetres up to 5 cm. It is also desirable to use a general anæsthetic in the early

acute stage. Although Evipan had been used in adults, the best results have been obtained with nitrous oxide gas and oxygen. The patient being quite still and the head flexed forwards as far as possible, the needle should be entered just above the spine of the axis, and gently pushed in an upward inclined direction *exactly in the middle line*, to pierce the occipito-atlantic ligament.

Cisternal injection of serum allows of a greater concentration of antibody in the basal cisterna, in the cerebral subarachnoid spaces, and in the ventricles around the choroid plexus[8] than is possible with lumbar injection. It also provides a valuable alternative site to the lumbar region when numerous injections have to be given. It is essential, however, that all precautions be taken to avoid hæmorrhage from the operation, as the consequences of hæmorrhage from the cistern may be much more dangerous than that from the theca.

The value of *early* ventricular puncture and injection of serum in infants has been stressed by Dopter, Lewcowicz,[9] and more recently by Cantacuzène,[10] who consider that the serum is thus brought into contact with the source of the infection in the cerebro-spinal system—i.e., the primary "chorio-épendymite." It appears to be reasonable to attempt this procedure in cases that are not responding to routine treatment at some time about the 5th–8th day of treatment, rather than to wait until blockage of the system has occurred. Our series included an instance of such successful interference. On the eighth day of treatment the temperature had not fallen and the cerebro-spinal fluid contained 1260 cells per c.mm. and meningococci. Double ventricular puncture, with removal of 16 c.cm. fluid and injection of 10 c.cm. serum, was followed in 48 hours by fall of temperature to normal and a clear fluid by lumbar puncture. Thereafter convalescence was rapid. The operation may be rapidly and painlessly performed in persons of any age, by the use of the modified Goetze channel borer described by Purves-Stewart.[11]

CONCLUSIONS

(1) Meningococcus antitoxin prepared by using, as antigens, soluble toxins of Types I., II., III., IV. meningococci, appears to be a potent therapeutic agent for Types I. and III. meningococcus meningitis, as shown in a recent small series in London. (2) Its potency in Type II. meningitis is much more doubtful. (3) It is suggested that intensive dosage—viz., twice daily spinal injections in the early acute stage, combined with one or more intravenous injections—is an important factor in the success of treatment.

ADDENDUM

Since this article was written, evidence has been obtained that the usual conditions of storage of meningococcal serum in hospital may be, in some cases, responsible for failure in treatment.

A batch of meningococcal antitoxin was received in June, 1934, and stored in the ice-chest of the dispensary of the hospital. Good results were obtained with this batch until February, 1935, when two cases, one of Type II. and one of Type I., in which recovery was confidently expected, failed to show any evidence of improvement, even with the ideal intensive courses of treatment. The agglutinating power of this batch on the Type I. strain isolated was then compared with that of a fresh batch of meningococcal antitoxin on the same strain. It was found that only *a trace of agglutination in 1 in 30 dilution and none in 1 in 60 dilution* occurred with the old batch, while the fresh batch agglutinated strongly in 1 in 30 and also less strongly in 1 in 60 dilutions. (The fresh batch has also been tested therapeutically and found to be rapidly effective.)

The ice-chest in the dispensary was next investigated. The routine practice was to put in fresh ice every 48 hours during the winter. The temperature inside the chest under these conditions in February was found to be between 51° F. and 54° F.—obviously a very unsatisfactory temperature in which to store serum for eight months. Cantacuzène (loc. cit.) has stated that meningococcal serum is a serum which ages very quickly, and ought not to be used more than 5 or 6 months after collection.

The makers of meningococcal antitoxin give an expiry date 18 months beyond the date of manufacture, and this is probably far too long for the serum to retain potency under the usual hospital conditions of storage. The point is especially important in the case of meningococcal serum, since in non-epidemic times there may be long intervals between admissions of cerebro-spinal fever cases to any particular hospital.

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LARGE ENCHONDROMATA IN A CASE OF DYSCHONDROPLASIA

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THE following case is thought worthy of record because of the good function that remained in spite of large enchondromata, and because of the association of dyschondroplasia with these.

A man of 23 was sent to the London Hospital on account of deformity of the hands. When he was three years of age, swellings in the fingers of both hands were first noticed and became progressively large, but he has always been able to dress himself and cut up his food. On leaving school at the age of fourteen he became a clay labourer. He managed the work well, but was eventually discharged by his employer, who feared some accident to the deformed hands. Since then he has worked for relatives or on his own account as farm labourer, cobbler, or going about on a bicycle as a pedlar. He has established his clientele, outside which he hesitates to go, for people are shocked when they see his hands (Figs. 1 and 2).

During the last year there has not been much change in the condition. There has never been any pain, and he can knock the hands without undue pain. He complains only of the disability and deformity due to the size of the lumps. When he was nine years of age the biggest lumps were removed at operation, 7 from the left hand and 9 from the right. The wounds healed well. Some of the lumps have recurred. Since he was eight there have been swellings on the toes of both feet. These swellings have grown larger, but do not seem to be changing now. They cause him no trouble, he wears ordinary shoes, and can play football. For as long as he can remember his left elbow has shown a projection. Occasionally it aches a little, and it is not as strong as the right elbow, while movements are not quite full.

At the age of three he fell off a stool and the left arm was bandaged for a week or two for a sprain. He has had no serious illness. There is no family history of abnormality of hands or feet. Father, mother, and five brothers and sisters are alive and well.

Examination.—He is undersized, 5 ft. 3½ in., but his brother is only 2 inches taller. On the left (Fig. 1)

thumb, little finger, and carpus are perfect. The other fingers and their metacarpals show numerous cartilaginous tumours, hard rather than elastic, slightly translucent, the skin over the larger ones tightly stretched, shiny and showing prominent veins. These three fingers have sensation and mobility in their tips, but owing to enlargement of their proximal parts he is unable to use them and is willing to have them amputated. The radius is normal, but its head is dislocated from the humerus, beyond which it

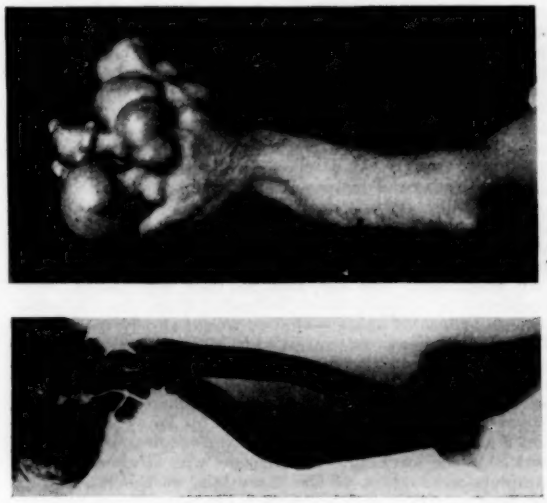

FIG. 1.—The left forearm and hand.

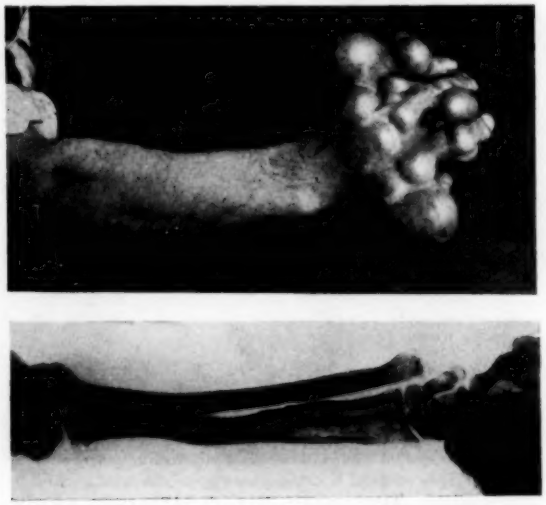

FIG 2.—The right forearm and hand.

projects 1½ inches. The ulna shows at the middle of its shaft a subcutaneous prominence, at which the whole bone is angulated. The lower end is deformed and forms a movable joint with the radius, but does not reach within ½ inch of the carpus. There is an abnormal, rounded shadow to the radial side of the coronoid process, of which it is probably a fragment. Elbow movements are full, except for the last 5 degrees of flexion and extension.

In the right hand (Fig. 2) most of the phalanges and metacarpals show several chondromata, but all digits are useful, and he can write well. The nails of two fingers are displaced by tumours. Radiographs show that the carpus is perfect. The ulna is ½ inch longer than the radius, and its head is very prominent subcutaneously, while its styloid process is separate. The radius shows a widening of the lower end of its shaft, and here the bone is abnormally and irregularly translucent.

The feet show no disability, and he wishes no operative interference.

Treatment.—Mr. Robert Milne operated on the index and little fingers of the right hand and removed the largest two lumps by cutting and scraping. Care had to be exercised to avoid spontaneous fracture of the bones. Each tumour was covered with a bony capsule, but was easily cut with a knife elsewhere, the interior consisting of bluish cartilage. This was fairly vascular, was not encapsulated towards the rest of the bone, and showed no evidence of ossification. The wounds healed by the first intention, function was much improved, and the patient expressed himself as very well pleased with the result.

The way in which this man used such distorted hands was surprising. The fact that the tumours did not altogether cease growing at the age for union of epiphyses would suggest, according to Noble,[5] that they had become sarcomatous. The shiny appearance of some of them, with prominent overlying veins, seems to support this view, although the long history and the appearance on section do not. There was little doubt that ulceration of the stretched skin over the largest tumours would soon have occurred.

Ollier in 1899 described [1] as "dyschondroplasie" "an affection characterised by irregularity in development, evolution, and distribution of cartilaginous tissue in the bones in process of development, the cartilage seeming to be of normal structure and changing more or less slowly in the direction of ossification." His cases had pliable fingers, through the bones of which he could thrust a needle. Limbs were shortened, commonly on one side of the body only. Radiographs showed in the diaphyses streaks of diminished density resembling cartilage, and he was afraid that this cartilage might give rise to real tumours; but he did not report such an occurrence. He placed dyschondroplasia close to the condition of multiple exostoses ("diaphyseal aclasis"). The exostoses of this share with the cartilaginous masses of that the capacity for eventually undergoing ossification. He pointed out that these two conditions affect chiefly the period of growth, and that they may coexist. He contrasted dyschondroplasia with the condition of multiple chondromata. This arises also during the period of growth, but its neoplastic tumours remain indefinitely in a cartilaginous state, making no attempt at ossification.

Bentzon [3] compares the cartilage in dyschondroplasia with that in the callus in a healing fracture. He suggests that as cartilage is the body's material for repairing a fracture, so is it needed in dyschondroplasia to repair damage done by a hyperæmia resulting from imperfect sympathetic nerve-supply to the vessels.

The present case appears to be a link between the conditions which Ollier contrasted, for it shows large masses of typical enchondromata of hands and feet associated with dyschondroplasia of other bones. The haphazard distribution of ectopic cartilage in the diaphyses and the immunity of carpus and tarsus are characteristic of dyschondroplasia.[3] The appearance of long bones of only the forearms is shown in the accompanying illustrations, but similar abnormalities in his other long bones are now under investigation by the radiological department of the London Hospital.

It is interesting to find a short ulna on the left side associated with a short radius on the right, where the clinical appearance is that of Madelung's deformity. The deformity of the left forearm might, in view of the separation of a piece of the coronoid process of the ulna and the history of injury in infancy, be attributed

to that common association[6]—a fracture of the ulnar shaft with dislocation of the radial head. The ulna, however, ends below in a "thimble-shaped mass of cancellous bone," and is typical of diaphyseal aclasis, in which condition inequality of growth between the bones of the forearm leads to a dislocation of the proximal end of the radius in a third of the reported cases.[2] Angular bends are not uncommon in dyschondroplasia.[4] In the present case the bowing of the ulna

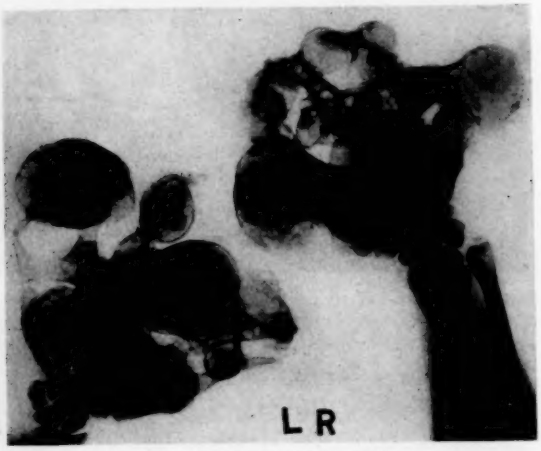

FIG. 3.—X ray of the hands.

certainly accounts for its shortening, as much as does actual lack of length. The bowing could not have been due to yielding to thrust transmitted from the hand after dislocation of the radial head, for the lower end of the ulna does not reach to within half an inch of the carpus, while its joint with the radius is very movable. This deformity was therefore probably due not to trauma but to abnormality of bone growth.

My thanks are due for permission to publish this case to Mr. E. C. Lindsay, and for the radiographs to the radiological department of the London Hospital.

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TRAUMA AND SARCOMA

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The existence of a causal relationship between trauma and sarcoma of bone has long been a subject of dispute. A decisive opinion is difficult on clinical evidence alone and, unfortunately, it is not possible to find corroboration or refutation by the test of strictly comparable animal experiment. The frequent unreliability of the statements of patients and relatives in regard to the time, severity, and exact site of injury gives ground for an attitude of scepticism. This attitude is supported by the vast numbers of known injuries to bone in which malignant disease does not supervene. There is general agreement that "there may be something in it," but it is desirable to advance beyond this vague concession if such a step be justifiable. Apart from the medico-legal aspect, the subject is worthy of strict and continuous inquiry in the hope that new ground may be broken in the general field of cancer research if belief in the inter-relation of sarcoma and a single episode of trauma could be established.

Each addition to the sum of clinical evidence has some value.

A CASE RECORD

A. B., a clerk aged 21, was in apparently perfect health on a day in June, 1931, when he went for a swimming lesson in his luncheon hour. Misjudging his distance while swimming on his back, he struck the back of his head with moderate force against the tiled wall of the pool. The skin was not broken. He was slightly dazed and left the water on the advice of his instructor, but was able to dress and to return to his office at the usual time. A "bump" developed during the afternoon. In the evening he and his parents jested about the accident.

The swelling did not diminish in size as the days passed, and about a fortnight after the injury a friend who sat alongside him in the office remarked that it looked a little bigger than before. This agreed with the patient's own impression and led him to visit his doctor, who diagnosed a subpericranial hæmatoma on the occipital bone, and was of opinion that it would slowly disappear. The swelling, however, continued to increase very gradually and to become slightly tender. Seven weeks from the date of injury, and in the absence of his own doctor on holiday, he went to the surgical out-patient department of the Royal Infirmary, where he was seen by Mr. T. M. Millar, and 8 c.cm. of blood-stained fluid were aspirated from the centre of the swelling. An incision was advised for the complete evacuation of the mass but, at the request of the patient, this was delayed until his return from holiday a fortnight later. On the second occasion the surgeon was impressed by the increase in size and tenderness, and he removed a piece for diagnosis. The report of Dr. James Davidson, pathologist to the Royal Infirmary, dated Sept. 17th, 1931, was as follows: "The tissue examined is definitely malignant in character. There are undifferentiated malignant mesoblastic cells with an irregular formation of a primitive type of cartilage and bone. The growth is very vascular. The condition is that of an osteogenic type of sarcoma."

The patient was referred to Mr. Henry Wade, the surgeon-in-waiting, and admitted to hospital without delay. Radiography showed no bony change. At this time the swelling had reached a size of 8×6 cm., with a maximum depth of about 4 cm.; it was hard and tender. The biopsy incision had healed completely. The tumour was immovable upon the skull, and its central point lay very slightly to the left of the external occipital protuberance. One small soft gland was palpable in the left suboccipital region. There was no disorder of vision and the general health was good.

On Oct. 1st, 13 weeks from the date of injury, a radical excision of the tumour mass with the overlying skin was carried out. Very slight pitting of the outer table of the skull was observed at the centre of the exposed area, and this was carefully chiselled over. Fourteen days later the whole surface was covered with granulation tissue. Forty milligrammes of radium were then applied on a moulded stent applicator at a distance of 1 cm. for 123 hours. After ten days at a convalescent home he was readmitted for irradiation of the suboccipital area. For this purpose 40 mg. of radium were applied for 192 hours in an applicator at 1·5 cm. At this time the wound still looked healthy and the small lymph gland, previously noted as enlarged from the debris of the hæmatoma, was not palpable.

He was discharged from hospital on Nov. 7th. Four weeks later he was readmitted with a recurrence of growth at one edge. This was the first of a rapid and inveterate series of recurrences against which further attempts at treatment proved unsuccessful. All further sections showed the same histological appearances as the first. Very soon evidences of pulmonary metastasis appeared, and the follow-up department intimated his death on March 28th, 1932, approximately nine months from the date of injury.

DISCUSSION

The sequence of events, precisely known, and the unusual site of the lesion seem to warrant the assumption that the sarcomatous process was initiated by the trauma in this case. The age of the patient within the period of body-growth, the moderate severity of the injury, the presence of a persisting hæmatoma with the absence of fracture or escape of blood on the skin surface—these are the outstanding points of resemblance in this case to the great majority of other recorded instances of similar tragedy. In such cases cells which are apparently normal in form and habit are converted into an abnormal type which is described as malignant because of its effect upon the host. Biologically one cell entity is not more malignant than another. The change in type is neither fortuitous nor lawless. Apart from the properties of growth and division which are common to all cells, environment is the determining factor in the modification of cell composition and morphology. It may be of some profit to discuss the rôle of the extravasated blood as a potent factor in environment. Its presence may influence profoundly the connective tissue cells around, and such cells will tend to breed true unless further environmental influences are sufficiently strong to alter their course.

The case quoted may be taken as a text in the description of a principle underlying the physiological process of repair which, under certain circumstances, may result in malignant disease.

In the repair of damaged tissues there are two processes which act harmoniously towards restoration of form and function in the great majority of instances. Firstly, the surviving cells in and around the area of injury are stimulated to proliferate so that an abundance of new raw material for rebuilding is made available in the form of granulation tissue. Secondly, these cells are acted upon by a complex group of factors which differentiate the raw material and effect an adjustment in them by which function is restored if the damage has not been too severe. Where repair is required, these two processes, the proliferative and the integrative, act in succession as related stages. This is well exemplified in a simple fracture of a long bone where the first stage consists of the appearance of a mass of new connective tissue cells in the area of the hæmatoma. Then, by the action of complex factors in the blood stream of the surrounding hyperæmic zone and the action of enzymes from the damaged bone-cells, the mass of young cells becomes changed into callus and further differentiation and adjustment takes place under local stresses and strains until, after several months, there may be found a complete restitution of the original form of the bone.

The stimulus to proliferation is given by substances derived from the extravasated blood and from the dead and dying cells of the other tissues. A similar effect of injury can be demonstrated in the vegetable world. Haberland and others have shown how substances diffused from the injured parts of turnip tubers and leaves induce proliferation in the healthy cells. It is unnecessary for present purposes to discuss the intimate nature and working of the stimulus, although a considerable amount of knowledge has been obtained upon the subject. It will be generally conceded that a stimulation is evoked in this way. This provision of fresh material forms the essential foundation for restoration.

The second stage of the differentiation of this raw material is, as yet, imperfectly understood. In addition to qualitative humoral influences from the rapidly re-established blood-supply, it is obvious that mechanical factors come into play, probably by influencing the distribution of the new capillary system. Where good anatomical replacement has not been attained after fracture, an entirely new system of buttressing may be produced, and this is obviously determined by functional requirements. To subserve the ends of function, the "free cells" (as we may regard the raw material) are acted upon by chemical and physical influences so that individual differentiation and group remodelling become apparent.

Two general statements may then be accepted. First, that healthy cells can be stimulated to proliferate in the presence of shed blood and of substances derived from the breaking down of other tissue cells. Secondly, that the differentiation of these young cells is due to superimposed factors related to the special function of the part. These superimposed factors affect not only the form and chemical composition of the cells, but also slow down their rate of division very markedly. It is of interest to note that the young cells of the proliferative stage of repair obtain their energy by the process of glycolysis in contrast to the oxygenation from the blood stream which characterises the differentiated cell. In this respect, the early undifferentiated cells of repair resemble those other types of "free cell," the morula stage of the ovum, growth on the tissue culture slide, and frankly cancerous growth.

The question now arises: "What will be the effect of the application of a stimulus to proliferation if it be not accompanied and intimately associated with the superimposed differentiating factors determined by functional loss, as in normal harmonious required repair? To illustrate the point, we may take a crude example. If an order be given by an authority whose word is law to a mechanic to supply and fit additional parts to an engine which is already in perfect running order, it is highly probable that his meddlesome interference will ruin the engine. Material may be brought in abundance to the builder's dump, but it will only cumber the ground until the master architect imposes a plan of construction upon the confused elements which have been assembled. Environment is law to the living cell. If the proliferative stimulus be applied, proliferation will ensue. If this is not regulated by all the inhibitions of differentiation, a disharmony will result. The unwanted stimulus becomes a goad.

The tar group will stimulate the proliferation of cells. In this work the constituent dibenzanthracenes play a prominent part. It will be remembered that dibenzanthracene has a close functional relationship to some other growth factors, such as auxin in plants and œstrin in mammals. Clinicians for many generations have employed the tars to accelerate the healing of broken surfaces such as ulcers, and there is general belief in their efficacy apart from their antiseptic properties. If, however, such a tar, adjuvant where healing is in process, be applied over a prolonged period to an intact area of skin where no repair is required, a slow and abnormal proliferative response is obtained. The cellular content of the epidermis increases and shows a heaping up in papillomatosis. Unlike the thickening of the epidermis as a protection against pressure and friction, the hyperplasia from the unwanted chemical stimulus subserves no function, and Kreyberg has shown that the blood-vessels, instead of expanding for service, will be, as it were, recalcitrant and evince a capillary thrombosis. Proliferation will nevertheless continue, and after the passage of many generations of cells it

becomes their chief end, as with all free and "unemployed" cells. The metabolic demands of such cells are simple and easily met from the tissue fluids. Unless extirpated before they have spread from the original locus or destroyed by radiation, the way is open for the establishment of the undifferentiated group.

Another example may be given. The discharges of a raw surface, usually with a mild degree of infection, have a stimulating effect upon the cells which they bathe. This is the basis of the Winnett Orr treatment of the widely opened wound in osteomyelitis and is an accepted fact in clinical practice. The prolonged action of these stale discharges upon the epithelialised sinus or on the skin surrounding the cloacal opening from a badly drained cavity in osteomyelitis may initiate a proliferation which will culminate in carcinoma. The retention of stale discharges and secretions is a highly probable factor in the ætiology of carcinoma in many situations. An analysis of this subject has been made in a previous paper.

I submit that the action of a stimulus to proliferation where no repair is required may be noxious because under these circumstances there is an absence or gross insufficiency of the factors which induce differentiation. To revert to our text, the subperiosteal hæmatoma which lies in a cleft between a wall of intact bone and a dense and virtually intact periosteal membrane may persist for many weeks and is a well-recognised clinical entity. There may be no trace of functional impairment and a gross imbalance obtains between the proliferative and the differentiating aspects of the repair process. A true chronic irritant is in constant operation in the sense of the best definition of chronic irritation, namely, "the persistent manifestation of the process of repair." The multiplying cells lack a functional destiny.

It is unnecessary to emphasise the close similarity between such a conception of the initiation of this "conversion" type of cancer and that of the "continuing" or congenital type, of which the best example is the renal blastoma. In the conversion type, normal cells revert under a chemical stimulus to a primitive form which will persist in the absence of a subsequent adequate stimulus to differentiation. In the "continuing" type differentiation has failed to effect a change in all the cells which should come under its complex sway, and groups may continue to grow in what approximates to the free form of the morula stage. To Nicholson belongs the credit of providing an acute analysis of this failure in the congenital cancer group in which the Cohnheim "rest" theory finds its justification.

SUMMARY

A clinical case is recorded in which a known trauma appeared to be responsible for the development of sarcoma. The view is advanced that the prolonged action of a stimulus to proliferation, where function is unimpaired, may be responsible for the physiological aberration which is known as malignant disease.

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CLINICAL AND LABORATORY NOTES

LATERAL SINUS THROMBOSIS DUE TO BACILLUS PROTEUS

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AND
SINCLAIR MILLER, D.S.O., M.C., M.D., M.R.C.P.

THE patient was a nurse, aged 20, who reported sick at the Royal Bath Hospital, Harrogate, on Oct. 15th, 1934, complaining of pain in the lower jaw following the extraction of a tooth two days before. The temperature was 104° F. There were no other local symptoms. The tooth socket appeared to be clean, and there was no swelling of the alveolus or face.

The temperature continued high, with rigors on the 16th and 17th. The patient was seen by one of us (S. M.) on the 17th. There were then no localising signs and a blood culture taken at the time was sterile. On Oct. 19th a slight facial paresis on the left side developed. On Oct. 20th A.B. P.-S. was called in. The patient made no complaint of pain or discharge from the ear, and stated that she was not deaf, but had had ear trouble as a child. The right ear was normal: on the left side there was marked middle-ear deafness, granulations in the attic region, and a small amount of pus in the fundus; but no mastoid swelling or tenderness.

She was immediately transferred to the Harrogate General Hospital, where an operation was performed two hours later. Pus was found throughout a cellular mastoid; it was brownish and offensive. A large area of the lateral sinus lay exposed; the wall of this was discoloured but by no means necrotic. Its appearance suggested thrombosis. Exploration of the sigmoid portion with a hypodermic syringe showed the sinus to contain fluid pus. Culture from this grew *Bacillus proteus* only. A culture of the tooth socket proved sterile. The internal jugular vein was ligatured and divided above the common facial. The posterior part of the lateral sinus contained clot to within 1½ in. of the middle line.

The fever continued, and after 48 hours both wounds, which had been partially closed, were reopened to ensure complete drainage and allow frequent irrigations with eusol. The exposure and drainage of the local infection appeared to have been adequate and complete; but the temperature, nevertheless, remained high, with repeated rigors, and it became evident that a general blood infection had become established. Neither blood transfusions nor antistreptococcal serum intravenously appeared to influence the course of the disease. Repeated examination of swabs from the operation wound gave *B. proteus*, and a further blood culture on Nov. 4th gave a pure growth of that organism. The clinical condition of the patient became progressively worse and she died on Nov. 6th.

It is rare that *B. proteus* is incriminated as the cause of a fatal septicæmia. Wilson [1] in the Medical Research Council's System of Bacteriology, quotes Maymone,[2] Warren and Lamb,[3] and Irimonoiu and Popa[4] as having reported cases in which it was the cause of septicæmia. In this case there can be little doubt that the patient had a latent *B. proteus* infection of the middle ear which suddenly became active, producing an acute generalised infection.

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Harrogate.

MENINGOCOCCAL MENINGITIS FOLLOWING FRACTURE OF THE SKULL

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Meningococcal meningitis is a rare complication of fracture of the skull, but in view of the high meningococcal carrier-rate sometimes recorded in England[1] the possibility of its occurrence should not be overlooked. The case here described was seen at the Royal Infirmary, Dundee, and I am indebted to Mr. F. R. Brown for permission to publish the clinical details, supplied by the resident medical officer.

Clinical history.—The patient, a soldier, was admitted to hospital on Sept. 16th, 1934, after a motor accident. There was a long cut in the median sagittal plane of the scalp, extending from the bridge of the nose well back over the frontal bone, in which there was an obvious depressed fracture. The wound edges were pared and sewn up on the day of admission and the patient was given an injection of antitetanic serum. He improved daily until Sept. 26th, when he complained of "stuffiness" of his nose and some discharge from it. On the 28th he complained of headache and ringing in his ears, but there was then no sign of meningitis and his temperature was not raised. Five hours later in the same day his temperature had risen to 102° F., and lumbar puncture was performed. The cerebro-spinal fluid obtained was cloudy, and on Oct. 1st the organism grown from it was shown to be a meningococcus. During the whole period Sept. 28th to Oct. 1st the patient became steadily worse. There was pronounced head retraction, almost of the gun-hammer type, and progressive cervical rigidity. The patient was extremely irritable and hyperæsthetic. On Oct. 1st he was transferred to the King's Cross Hospital, and died there.

Bacteriological diagnosis.—The organism isolated from the spinal fluid was sent to Oxford on Oct. 2nd. Smears showed Gram-negative cocci which were very irregular in size and staining reaction; there were many deeply stained giant cocci. The organism failed to grow from the first culture received, which was in the form of a stab inoculation into semi-solid agar. Further cultures were therefore sent from Dundee on semi-solid agar, serum agar, and Dorset's egg medium. The only one which survived the journey was the culture on egg medium, which has consistently proved to be the best medium for the transmission of living meningococci.

The organism grew rapidly in subculture on fresh egg medium and fermented both maltose and glucose. Standard suspensions of the killed organism in saline agglutinated at a serum dilution of 1 in 25 in Group I antimeningococcal agglutinating serum, and at a dilution of 1 in 1000 of a Group II. serum prepared from a Group II. organism grown from the nasopharynx of a carrier (Scott). On stab inoculation of the organism into 5 per cent. monovalent antimeningococcal immune serum agar,[2] haloes developed round the growth on the Group II. serum agar, but not on the Group I. serum agar. The organism was therefore diagnosed as a meningococcus belonging to Group II. and serologically similar to the Group II. organisms present in the nasal passages of carriers.

There is no evidence to show how the infection occurred in this case, but it seems probable that the patient was a carrier of Group II. meningococci, which entered his cranial cavity either directly through a fissure in the base of the skull, or through the blood stream. Unfortunately, no swabs of his nasopharynx were obtained.

Jakob[3] recently described a case similar to the above, in which meningococcal meningitis developed after a fracture of the skull and recovery took place after treatment with antimeningococcal serum. In this case the patient was a meningococcal carrier.

I wish to record my thanks to Prof. W. J. Tulloch for supplies of spinal fluid and cultures obtained from the above case.

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CIRSOID ANEURYSM

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It is rare to see a cirsoid aneurysm of any considerable size, probably because they are usually detected and treated early. This case may therefore be of interest to those who have not met with the condition.

A. B., aged 23, housewife, was admitted to Hackney Hospital on Sept. 25th, 1934, complaining of a swelling the size of a large walnut over the left mastoid region. She stated that she first noticed the swelling three years previously, when it was the size of a pea. It was said to have increased rapidly in size during the six months before her admission to hospital. Eight years ago she had been struck over the left ear with a cricket bat. No other history of trauma was forthcoming.

The patient said that she could not sleep when lying on her left side because of the "blowing noise in the swelling," and that as a result of sleeplessness she had been getting more and more irritable. On examination a pulsating mass of vessels the size of a large walnut could be felt over the left mastoid region. It extended in front of, above and behind the ear and downwards to about the tip of the mastoid. A well-marked thrill and bruit were present. The aneurysm involved the left posterior auricular vessel and appeared to extend to the temporal and occipital vessels. The question arose whether the intracranial vessels communicating with the aneurysm were likewise affected; but radiograms of the skull showed no increase in size of the grooves on the inner aspect of parietal and temporal bones. This finding was confirmed by injecting the aneurysm with lipiodol and immediate radiography of the skull.

Operation was performed on Oct. 6th under general anæsthetic. In view of the examination findings I was of the opinion that the left superficial temporal, post-auricular, and occipital vessels were involved, and in order to deal effectively with the condition, and also get a more bloodless operative field, it seemed advisable to do a primary ligation of superficial temporal and occipital vessels. These two vessels were exposed by the usual exposures in front of the ear and behind and parallel with the upper part of the posterior margin of the sternomastoid muscle respectively. The vessels were doubly ligated and divided between the ligatures.

A continuous interlocking catgut stitch of the scalp was inserted, extending in a semilunar fashion well up towards the vertex, from the site of exposure of the superficial temporal vessel to the site of exposure of the occipital vessels. A similarly shaped flap distal to the interlocking stitch was turned downwards, so exposing the aneurysmal mass lying on the mastoid area. The posterior auricular vessels connected with the vascular mass were caught up with forceps at their point of entry and under-run with catgut stitches. The excision of the aneurysmal mass was fairly easily and rapidly proceeded with, in what was practically a bloodless operation field. The scalp flap was then sutured back in position and the interlocking stitch removed. The wound healed by first intention and the patient made an uninterrupted recovery. She had no more trouble with noises over left side of the scalp, slept normally, and lost her irritability. She was discharged on Oct. 27th. She has reported several times since and appears perfectly well. She shows no sign of any return of her former trouble.

(1) There is a history of trauma—the time-honoured cause—although the swelling did not appear for five years afterwards; (2) the continuous interlocking stitch of the scalp after primary ligation of the superficial temporal and occipital vessels allowed one to work in an almost bloodless field, and so excise the aneurysmal mass with comparative ease.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

AT a meeting of this section held on April 3rd the chair was taken by Mr. PHILIP TURNER, the president, and Mr. R. L. HOLT opened a discussion on

Traumatic Shock

He described experiments on dogs and cats carried out by Mr. A. D. Macdonald and himself, and reviewed the evidence for the existence of traumatic toxæmia. Against the theory had been urged, chiefly by American workers, the following facts: (1) that no observer had satisfactorily demonstrated the presence of any depressor substance in the venous blood from a traumatised area; (2) that the difference in weight between normal and traumatised limbs found by Cannon and Bayliss failed to give a true picture of the extent of the extravasation and hæmorrhage into the damaged area; (3) that the circulatory changes of traumatic shock differed considerably from those produced by the injection of histamine or other depressor substances obtained from tissue extracts. The experimental work described had fully borne out these objections. In no experiment had there been any evidence of any depressor or histamine-like substance in blood withdrawn from a limb after trauma. If traumatic and histamine shock were compared, marked differences were seen. In traumatic shock there was diminished circulating blood volume, diminished output of the heart before there was any fall of blood pressure and marked pallor of the viscera and lungs; there was little bleeding on section of a solid viscus and very little blood in the heart, and the removal of quite a small quantity of blood caused death. In histamine shock there was no change in the blood volume, a fall in blood pressure preceded any diminution in the circulatory output, the viscera and lungs were congested, and the heart full of blood; solid viscera bled freely, and much more blood had to be removed before death ensued. Further experiments with dogs and cats had shown that on an average 45 to 47 per cent. of the total blood volume was lost by extravasation; thus the fall in blood pressure was accounted for by loss into the traumatised tissues.

The shock following muscle trauma came on so rapidly as to suggest that it was of neurogenic origin, but the fall in blood pressure took place also under spinal anæsthesia or after sympathectomy. Its cause was probably local vasodilatation. Experiments had shown no marked difference between trauma with and without spinal anæsthesia in cats. Nor did the induction of spinal anæsthesia benefit animals already in a state of shock. While there might be some neurogenic factor, its importance was very slight in comparison with the local loss of blood and plasma. This factor alone might sometimes cause death, but in other cases was only the initiating factor in secondary shock, which might be aggravated or maintained by many factors, such as idiosyncrasy and exposure to cold. It was easy to produce shock experimentally, but not so easy to maintain it. The healthy animal tended to recover: concentration of the blood was followed by dilution. Factors which maintained shock all stimulated the sympathetico-adrenal system, and intense or prolonged vaso-constriction had a very adverse effect.

Mr. Holt proposed to classify shock into three main groups: *hæmatogenic*, due to loss of blood volume; *neurogenic*, due to loss of central vascular tone—the shock of emotional states, and *vasogenic*, due to loss of peripheral tone—the shock of histamine and other drugs. Hæmatogenic or secondary shock, was characterised by the following events, in order: diminished blood volume, a rise of the pulse-rate, vasoconstriction, a normal blood pressure, a diminished consumption of oxygen, and finally a serious fall in blood pressure. In primary or neurogenic shock, on the other hand, there was a fall of blood pressure with no rise of pulse-rate, vasodilatation, no diminution of blood volume or of oxygen consumption, while the fall in blood pressure was not serious if the respiratory centre was maintained.

The history of events in traumatic shock might then be expressed as follows: trauma produced diminished blood volume; this led to increased pulse-rate, vasoconstriction, diminished heart output, and a fall of blood pressure. If to the trauma were now added any cause of vasoconstriction, or any aggravating factor such as cold, vomiting, sweating, or pain, the blood volume was still further diminished, and this led to an increase of all the circulatory changes and a further fall in blood pressure. The result then was that the oxygen intake became less than the oxygen need, which resulted in a general increase in capillary permeability on the one hand and damage to the central nervous tissues on the other, the two factors together resulting in death.

Dr. DAVID SLOME described experiments carried out by Mr. L. F. O'Shaughnessy and himself, the trauma being produced by blows on the thigh muscles of the anæsthetised cat until the femur was broken. The theory which ascribed traumatic shock to a toxin elaborated in the traumatised tissues was based on the shock-like state produced by histamine. Trauma, after occlusion of the vessels, did not produce shock. Against the toxic theory were the following facts: (*a*) the quantity of depressor substances in the traumatised muscle was inadequate to cause shock; (*b*) occlusion of the venous return from a traumatised limb did not prevent shock; (*c*) there was no evidence for a toxic substance in the area of trauma or in the general circulation in the shocked state; (*d*) the changes observed in an animal in histamine poisoning differed from those seen in traumatic shock. On the whole, therefore, experimental evidence did not support the toxic theory. The theory of fluid loss had been set forth by Mr. Holt. There was no doubt that shock was due to hæmorrhage, but was it only hæmorrhage? Experimentally produced shock was not permanently relieved by blood transfusion, and the speaker and Mr. O'Shaughnessy had shown by various experiments that trauma to the limb of an animal supplied with blood by cross-circulation from a second animal, would produce shock in the first animal although only nervous pathways were intact. It was noticeable that if the fluid loss was only 14 to 20 per cent. of the total blood volume, as in some cases, the shock was none the less severe, and none the less rapidly fatal. There was no relationship between the blood loss and the survival time. The possibility of the lymphatic absorption of a toxin must not be forgotten when emphasising the results of occlusion of the blood-vessels. The nervous factor had been studied by administering trauma under spinal anæsthesia, which was undoubtedly beneficial to the animal, and by complete denervation of the limb before trauma. Both these measures modified the onset of shock, and a discharge of nerve impulses

from the traumatised area had been demonstrated experimentally. Their findings, therefore, suggested that the nervous factor was important and reinforced the effect of fluid loss.

Sir HENRY DALE, F.R.S., reviewed the circumstances in which the idea of traumatic shock had come into prominence. Early in the war secondary wound shock had been causing much anxiety, and a committee had been appointed to investigate the condition. At that time the two rival conceptions had been exhaustion of the vasomotor centre with general relaxation of the arterioles, and over-activity of the vasomotor centre with lack of blood in effective currency. Hæmorrhage or sepsis could obviously produce the latter condition, and both were present in most of the war cases. It was not surprising that work under peace conditions had failed to substantiate the earlier conclusions. Neither extravasation nor painful nerve impulses were adequate explanations of shock. What did the sensory impulses do? Arterial dilatation, however produced, caused fall in blood pressure but not oligæmia—rather it increased blood volume, because fluid was taken up from the tissues. Yet in traumatic shock there was oligæmia, as in histamine shock. Nevertheless, histamine could certainly not be the cause of traumatic shock, because of the rapidity of its action. The possibility of absorbed substances, with a long-range action, had not been ruled out, however, as an important factor in some kinds of shock.

Mr. L. F. O'SHAUGHNESSY said that although the failure of Holt and Macdonald to confirm the experiments of Dr. Slome and himself was at first sight disappointing, yet the traumatised limb with a broken femur was a different proposition from one in which the muscle only was injured. In one respect Mr. Holt did grave disservice to the solution of the problem. The term "secondary shock" was a mistaken one: originally used to explain death a long time after an injury, it had lain dormant until the great war, reappearing at about the same time as the theory of traumatic toxæmia. He had never seen a case of secondary shock in clinical practice, nor met a satisfactory account of it, nor had he seen a case experimentally produced. Apparent initial recovery followed later by shock had always been explainable in the war by hæmorrhage, gas gangrene infection, or some other factor. Whereas recovery from neurogenic shock was immediate, recovery from the mildest degree of surgical shock took two or three hours. Clinical experience showed that nociceptive impulses might exist without pain.

Prof. R. J. S. MACDOWALL reminded surgeons that it would be a pity to assume that the information in the ordinary text-book on the control of the circulation represented the sum total of present knowledge. It was not generally known that adrenaline contracted the intestinal vessels and was a profound dilator of the muscle vessels. Experimental physiologists came across curious manifestations of surgical shock. He had seen shock result in an animal from stimulation of the depressor nerve. This phenomenon was not explicable on any ordinary basis and might be due to the production of vasodilator substances in quantities too large for the body to deal with in the peculiar circumstances.

Dr. GALE spoke of experiments at St. Bartholomew's Hospital showing the relation between the site of a surgical operation and the rise in blood-sugar. This rise seemed to be greater the more the solar plexus was affected by manipulation.

Mr. C. HOPE CARLTON recalled observations on 50 children in Canada who had been treated for a condition indistinguishable from secondary shock by an exsanguinating transfusion. The condition was hardly improved at all and could therefore not well have been due to the presence of toxins.

The PRESIDENT said that surgeons in the war had been much impressed by cases of secondary shock, usually associated with hæmorrhage. The typical case had closely resembled the experimental conditions described by the openers. A soldier suffering from severe crushing, laceration, and fracture would appear to be progressing well, and then a small hæmorrhage would produce a profound and fatal degree of shock. The condition had been prevented by early treatment and gas-and-oxygen anæsthesia.

OPHTHALMOLOGICAL CONGRESS

THE fifty-fourth annual congress of the Ophthalmological Society of the United Kingdom was held at the Royal Society of Medicine on April 4th, 5th and 6th, under the presidency of Mr. R. Foster Moore. The occasion was of more than usual interest in that it coincided with the meetings in London of the International Ophthalmic Council, the International Association for the Prevention of Blindness, and the International Organisation against Trachoma. A large number of foreign guests were therefore present and the proceedings had an international tinge.

The meetings of the visiting associations were mainly concerned with two points of view, both of social and legislative as well as scientific interest, namely, that of prophylaxis and that of adequate statistical recording. Under the first heading were discussed such subjects as the ætiology of trachoma, the various hereditary conditions of the eye leading to blindness and their social consequences, the prophylaxis of ophthalmia neonatorum, and so forth. Under the second, papers were read on the classification of the causes of blindness and suggestions made for the collecting of accurate and full statistics relating to the blind population in the various countries taking part. Prof. Emil de Grosz (Buda-Pesth), Prof. van Duyse (Ghent), Prof. A. Franceschetti (Geneva), Prof. von Szily (Münster), and Mr. A. F. MacCallan (London) contributed notable papers, and the general atmosphere was one of coöperative and hopeful planning for the future.

At the meeting of the British society the president, Mr. Foster Moore, read an advanced and inspiring paper on the uses of radium in intra-ocular lesions. Mr. Foster Moore is an acknowledged pioneer in this field, and his results are distinctly hopeful. The types of growth for which this somewhat heroic treatment is indicated are among the most malignant known, namely, glioma retinæ and melanotic sarcoma of the choroid. (Angiomatosis retinæ, dangerous to sight though not to life, has also given encouraging results.) The president did not advocate the substitution of radium therapy for the proven treatment by excision except in cases where the only eye was involved or where excision was refused. Glioma of the second eye was, he said, a distressing condition for which radium offered the only hope apart from excision. He cited a successful case of five years' standing with no recurrence or dissemination. The application was made by means of a radon seed, usually of 1 millicurie, filtered through 0·5 mm. of platinum, either introduced directly into the growth through an incision in the sclera or sutured to this latter over the situation of the growth and left in

position for four days. Accurate localisation and delicacy of technique are essential and the operation is not without risk, since the optimum needed to kill the growth cells is very near the exposure which will start degenerative changes in the lens and normal retina. The address was certainly an outstanding contribution to the subject of radium therapy.

The president's address was followed by a discussion on diseases of the blood and their ophthalmological complications, opened by an ophthalmic surgeon (Sir Arnold Lawson), a physician (Dr. Letheby Tidy), a biochemist (Prof. E. C. Dodds), and a hæmatologist (Dr. P. N. Panton). The relationship of retinal hæmorrhages and exudates to the blood count, coagulation time, calcium content, and other blood changes was discussed from the various points of view. The afternoon was devoted to contributions by the guests, notably a paper on the localisation of retinal holes in detachment, by Dr. Marc Amsler (Lausanne), and on the treatment of the condition by a modified diathermy current by Dr. Leon Coppez (Belgium).

The following sessions were occupied by a variety of papers of interest. Mr. Tudor Thomas gave a detailed account of the microscopic appearances of two successful corneal grafts in man, the first available record on the subject. Mr. Cardell read a suggestive paper on the possible uses of polarised light in ophthalmoscopy and retinoscopy. By incorporating a double Nichol prism in the ophthalmoscope it was possible to abolish the corneal reflex and so to examine the macula easily through the undilated pupil, a procedure often of great value. Miss Ida Mann read a paper on an embryological theory of oxycephaly, which indicated that the possible primary aberration of growth lay in the visceral mesoderm of the maxillary process.

REVIEWS AND NOTICES OF BOOKS

Recent Advances in Sex and Reproductive Physiology

By J. M. ROBSON, M.D., B.Sc., F.R.S.E., Beit Memorial Fellow, Institute of Animal Genetics, University of Edinburgh. London: J. and A. Churchill Ltd. 1934. Pp. 249. 12*s*. 6*d*.

THERE are probably few physiological problems which have been subjected to more active investigation in the last ten years than that of reproduction. As the literature gains in volume and the terminology grows in complexity, so does the need arise for a periodical survey by an authority who, while familiar with intricacies, can yet direct our attention to its salient and well-established facts. In a preface, Dr. Robson explains that his treatment has been selective. He has been compelled to discuss very briefly, or even to dismiss altogether, much data which appear to have no permanent bearing on the problems which, for him, are important. Such a handling of the subject is clearly necessary, but equally clearly it will evoke criticisms from those whose work has been cursorily dealt with or overlooked. Making allowances for this and for the fact that it is probably now impossible to write a book on reproductive physiology which will please everybody, Dr. Robson's work may be regarded as fulfilling its primary purpose.

The book falls naturally into two parts. In the first, consisting of five chapters, are described the nature of the sex cycle in different animals, cyclical alterations in uterine endometrium and muscle, and the functions of œstrin and lutein. This part thus furnishes an anatomical and physiological introduction to the complex processes described in the six later chapters. These deal with the relation of the pituitary gland to ovarian activities, ovulation and fertility in primates, hormone production and excretion, pregnancy and parturition, and the mammary functions. The book concludes with a chapter on clinical applications which will be of special interest to those "clinicians who seek to incorporate into their practice recent advances in science," for whom, Prof. F. A. E. Crew explains in an introduction, this book has been primarily written. Clinical applications of our present knowledge are (1) diagnostic, (2) therapeutic. "In the field of diagnosis," says the author, "important and even spectacular progress has been made, whereas the therapeutic application of hormones yielded apparently meagre and disappointing results." The diagnostic functions are clearly described: the Aschheim-Zondek test in its various applications, the Friedman test, and the Brouha test. Indeed, details of technique are included which would be of interest to the laboratory worker rather than to the clinician. The therapeutic applications are less clearly set forth. It is suggested that œstrin may have therapeutic uses in curing amenorrhœa and sterility, in terminating pregnancy, in relieving symptoms of the menopause, and in treating hæmophilia. The therapeutic use of corpus luteum hormones is, we are told, not yet feasible. The gonadotropic hormones of the pituitary have been administered for amenorrhœa, spasmodic dysmenorrhœa, the prevention of abortion, ovarian bleeding, and for certain pelvic inflammatory conditions. Though definite instructions as to the therapeutic uses of these hormones are as yet impossible, the clinician might have been grateful for clearer guidance as to their possibilities. The book is somewhat indifferently illustrated with diagrams, photographs, and microphotographs which are not always very clear or well explained. In parts it is carelessly written. Thus the textual description on page 9 does not correspond to the diagram on the opposite page and there are several examples of loose phrasing (such as the use of the word "menstruation" for the term "menstrual cycle" on pages 94 and 95) which have confusing effects. On the whole, however, the medical reader is deftly guided into and through the obscurities of a difficult subject.

Biochemistry of the Eye

By ARLINGTON C. KRAUSE, M.A., Ph.D., M.D., F.A.I.C., Instructor in Ophthalmology, the Johns Hopkins Medical School. Baltimore: Johns Hopkins Press; London: Humphrey Milford, Oxford University Press. 1934. Pp. 264. 15*s*.

IN this monograph, No. 2 of the series issued by the Johns Hopkins Hospital and University, Dr. Krause has attempted to review briefly the investigations which have been carried out on the chemistry of the eye. The work is divided into eight chapters, which deal in order with the chemistry of the external secretion and conjunctiva, the sclera, the cornea, the uveal tract, the retina, the aqueous humour, the vitreous humour, and the lens. A very full bibliography is given at the end of each chapter, and the various conclusions reached by different

workers are summarised and critically discussed. Forty-nine pages throughout the book are devoted to a study of the chemistry of the lens, and this forms the largest chapter in the work. We would have liked to hear more of the author's views on the theories of the formation of the aqueous humour, and it seems a pity that the soft, low-tension eye of diabetic coma receives no mention.

The monograph will doubtless prove of great value as a work of reference both to ophthalmologists and biochemists; some ophthalmologists who consult it may be dismayed to find that Dr. Krause presupposes a knowledge of general biochemistry and its related subjects in his readers. It would, however, have been impossible to keep the book within reasonable compass if this assumption had not been made, and for those who possess the equipment to appreciate it this work provides a valuable addition to the literature of the chemical side of ophthalmology.

Psychology and Health

By H. BANISTER, M.Sc., Ph.D., Director of Psychological Studies, St. John's College, Cambridge; Lecturer in Experimental Psychology in the University. London: Cambridge University Press. 1935. Pp. 256. 7*s.* 6*d.*

THIS is a very fair exposition of modern psychological medical problems by a trained psychologist who is a practising psychotherapist to the Papworth Village Settlement. Dr. Banister is not only experienced in the psychopathic problems of children and adults, but his training is catholic and methodical, and his comments demand respectful understanding. After a preliminary chapter on psychology and the physician, in which he urges the general practitioner to equip himself to undertake some measure of psychological treatment, at least of the child, Dr. Banister proceeds to a useful consideration of the senses in which he intends to use some of the common psychological terms, whose meaning in any article tends to vary with the author's school of thought. Successive chapters deal with mental defect; the problem child; infantile sexuality; further development; the annoyances and troubles of the healthy; effects of ill-health; the invalid; suggestion; hypnosis; the unconscious and dissociation; conversion hysteria; anxiety states; and compulsion and obsession. Thereafter the outstanding theories of Freud, Jung, Adler, and Janet are discussed each to a critical exposition, and the final chapters are concerned with methods of treatment.

Dr. Banister raises an interesting distinction between dissociation, according to Janet, and conversion hysteria, according to Freud. His account of child problems is sound and unprovocative, inclining to environmental interpretations rather than to the anxiety theories of the Freudians, which account for child neurosis on the basis of instinct frustration, particularly of infantile sexuality. This knotty problem, which forms the basis of psycho-analytic play technique, is made the subject of a special chapter. Dr. Banister rejects the psycho-analytic insistence on infantile sexuality, and suggests alternative interpretations which will appeal to all but strict Freudians. According to him, curiosity rather than actual sexual desire is the keynote of the child's interest in procreation and physical functions.

Dr. Banister is by no means an opponent of Freud; his work shows him to be a critical adherent of the wider principles. The zealots will hold that his doubts about infantile sexuality puts him definitely outside the pale; whereas those to whom not only psychoanalysis but any of its derivatives are anathema will find him far too sympathetic to the many variants of modern theory and practice, which he discusses with obvious understanding. It seems likely that his work will appeal to those for whom he writes—medical students and practitioners who need to understand something of the working of the human mind in order "to direct to favourable ends the psychological processes which inevitably influence the course of every life."

Physiology in Modern Medicine

Seventh edition. By J. J. R. MACLEOD, M.B., LL.D., D.Sc., F.R.C.P., F.R.S., Regius Professor of Physiology in the University of Aberdeen. Assisted by PHILIP BARD, Professor of Physiology, Johns Hopkins University School of Medicine; EDWARD P. CARTER, Adjunct Professor of Medicine, Johns Hopkins University; J. M. D. OLMSTED, Professor of Physiology, University of California; J. M. PETERSON, Lecturer in Experimental Physiology, University of Aberdeen; and N. B. TAYLOR, Professor of Physiology, University of Toronto. London: Henry Kimpton. 1935. Pp. 1154. 36*s.*

Prof. J. J. R. Macleod, whose death we had to record a few weeks ago, set his hand 17 years ago to the task of helping to bridge the gap between physiology and medicine. He was distressed, as so many others have been, at the contrast between the scientific and experimental atmosphere of the laboratory and the empiricism that dominates a great deal of clinical medicine; so he offered to the clinicians his now well-known book on "Physiology and Biochemistry in Modern Medicine." The book was intended to provide a basis of physiology out of which the inquiring clinician might begin to construct his own functional pathology. It was to deal with those parts of its subject whose bearing on medicine is closest, and to treat them as far as possible from the human, as distinct from the general mammalian, standpoint. The book has been of great value. In this last revision the collaborators have been increased to five—four physiologists and one physician; many chapters have been rewritten, and much new and useful material has been incorporated.

This is not to say that the gap which led to the original production of the book has yet been successfully bridged. The clinical end of the bridge is not so firmly grounded as the physiological end. The authors sometimes seem to have overlooked the very point at which the physician is unable to make progress. For example, a physiologist's critique of the various forms of test-meal would have been welcome; the statement that gastric HCl is "decreased" in pernicious anæmia, and the assertion that dystrophia adiposo-genitalis is undoubtedly due to a lesion involving the anterior pituitary, suggest a lack of familiarity with ascertained clinical and pathological fact. Even in his own field of carbohydrate metabolism Prof. Macleod has omitted to discuss the mysterious effect of the composition of the diet, on the efficiency with which the body deals with ingested sugar, an effect which has been known for years, and which no doubt underlies the success of the modern high carbohydrate diabetic diet.

Perhaps it is too much to expect the interdigitation of physiologist and physician over the whole range of medicine, and both may be better served by collaboration in restricted fields.

Synopsis of Pediatrics

By JOHN ZAHORSKY, A.B., M.D., F.A.C.P., Professor of Pediatrics and Director of the Department of Pediatrics, St. Louis University Medical School. Assisted by T. S. ZAHORSKY, B.S., M.D., Assistant in Pediatrics, St. Louis University Medical School. London: Henry Kimpton. 1935. Pp. 359. 17*s.* 6*d.*

THE word "synopsis" has come to have such a specialised connotation in this country that it usually suggests a cram-book on the lines of the old "Paley's Ghost" of the Little-go. This volume is not that sort of synopsis, but is, rather, a short text-book of pædiatrics; it is well illustrated with 77 photographs and diagrams and 6 coloured plates, and should serve as a useful introduction to the subject as well as a manual for rapid revision. It has been reduced to its very modest size by the use of type that is unpleasantly small for prolonged study, but it contains a vast amount of material at a most reasonable price. It is marred by a few definite misstatements and omissions which could easily have been avoided. Gaucher's disease, for instance, is described as "a chronic enlargement of the spleen caused by a deposit of large endothelial cells." Banti's disease, twice referred to, is said to be extremely rare in childhood, but is not described or defined. It is a pity that radiograms of the chest have not been consistently reproduced as either positives or negatives. These defects, however, are not serious enough to make the book unsuitable for its purpose, and students who want a concise review of pædiatrics, without entering deeply into controversial matters, will be well advised to procure it.

Groedel's Roentgendiagnostik in der Inneren Medizin

Lief. 1. Fifth edition. Edited by HEINZ LOSSEN. Munich: J. F. Lehmann. 1934. Pp. 186. RM.24.

THIS book forms the first part of the fifth edition of Dr. F. M. Groedel's text-book and atlas of X ray diagnosis, which is being produced in six parts by many authors. Groedel and H. Lossen contribute a very full description of technique, including that of kymography and cinematography. The same authors discuss the legal aspects of radiology, while Groedel and K. Saller deal with physical constitution. From the pen of the late Prof. G. Holzknecht comes a description of his technique for the localisation and measurement of internal organs. O. Schnaudigel provides a short chapter on the eye.

To the general radiologist the most interesting chapter is that by H. Wintz on the changes found in disturbances of the internal secretions. It is a mine of information on a little-known subject. H. Peiper's account of the investigation of the nervous system is invaluable to those radiologists who have opportunities of carrying out such work. We note the author's admonition that encephalography and ventriculography are not to be undertaken lightheartedly by the inexperienced.

A word must be said about the format of this work. Its 41 plates are among the best we have seen. The letterpress is rendered clear by the skilful use of different types. It is a puzzling fact that only in Germany do text-books on radiology seem to be produced in the grand manner. There is evidently a market for them such as does not exist in countries which consider themselves more prosperous. The editor, authors, and publishers alike are to be congratulated on their work.

British Journal of Children's Diseases

IN the January–March issue (Vol. XXXIII.), in a paper entitled Some Observations on Rheumatism in Childhood, Dr. T. Warwick Preston reviews the work of the past four years at the Elizabeth Bullock, Putney, and Downham Supervisory Centres, his conclusions being as follows: (1) pains of the "growing pain" type occasionally prove to be an insidious form of rheumatism which may attack the heart; (2) many pains which may appear to be rheumatic are caused by minor orthopædic conditions and general debility; (3) a certain number of children continue to complain for a prolonged period of aching limbs for which no adequate explanation is forthcoming; (4) cases of insidious carditis are usually the result of a definite subacute attack of rheumatism; (5) "growing pains" are uncommon in children definitely known to have had acute rheumatism; (6) among children with serious rheumatic carditis the general condition is remarkably good and complaints of all kinds are rare; (7) there is evidence that the heredity factor is a real one.—In continuation of his Analysis of Over Four Thousand Cases of Educational Deafness, Mr. Macleod Yearsley deals with cases of acquired deafness due to congenital syphilis and chronic middle suppuration (for which in the great majority of cases no cause could be found), chronic middle-ear catarrh, otosclerosis, and injuries of the ear.—Dr. P. H. Newman reports a Case of Double Riga's Disease in a male infant of 6 months, in whom an ulcer first appeared on the frenulum and under surface of the tongue and four months later on the dorsum. The condition healed rapidly on each occasion after removal of the incisor teeth.—Dr. V. Kolew of Satanow, U.S.S.R., reports a case of Premature Greyness of the Hair in a girl aged 12, whose hair had begun to grow grey on both temples two years previously, since when canities had spread all over the head with the exception of the eyebrows and eyelashes. The child was otherwise normal, and there were no similar cases in the family. Kolew attributes the condition to the fact that both the parents were elderly at the time of the child's conception.—The abstracts from current literature are devoted to tuberculosis.

NEW INVENTIONS

A NEW LOBECTOMY CLAMP

THE clamp here illustrated has been designed by us for holding and crushing the bronchus and pedicle of the lobe during the operation of lobectomy. The ordinary snare occasionally comes off the pedicle at the critical moment, but this clamp will give a firm hold and not slip, as it has great crushing power, while the longitudinal serrations of the blades render it possible to cut the lobe away absolutely flush with the clamp with safety. The upturned end renders the tying of ligatures or stitches round the pedicle easy. The clamp is made in two sizes for adults or children, and is now manufactured by the Medical Supply Association Ltd., 167, Gray's Inn-road, London, W.C.1, and is available for general medical supply.

W. H. C. ROMANIS, M.Chir., F.R.C.S.,
T. HOLMES SELLORS, F.R.C.S.

THE LANCET

LONDON: SATURDAY, APRIL 13, 1935

SCOTTISH SICKNESS EXPERIENCE

WHAT death-rates meant to the health authorities last century, sickness-rates mean to-day. The sanitary movement last century demanded for its efficiency registration of deaths and, later, notification of infectious diseases. The health movement this century, as it develops more and more into individual care, is creating a similar demand for exact information on the incidence and distribution of all forms of sickness. This demand may never be met by any complete system of sickness registration—probably it would be undesirable if it were; and it is therefore necessary to turn to full account every available channel of information. The hospitals, schools, and insurance medical practice are the most obvious sources of exact data; and of these, by far the most valuable, both for medicine generally and the work of the health authorities, is the last. Four years ago Scotland initiated a scheme for the recording, analysis, and study of sickness among the insured population. The idea was to extract from insurance medical certificates information about the causes of incapacitating sickness, and its distribution by age, sex, locality, and occupation. The motives behind the scheme were no doubt mixed: the Department of Health, who are responsible for it, could not be blind to its uses for checking up on certification. But from the first the Department, as well as outside observers, saw that it would justify itself only by the light it might throw on medical and public health problems. The scheme has obvious limitations. For example it records only incapacitating sickness; and it deals only with the industrial population between 16 and 65 years of age (more than a third, however, of the total population of Scotland). But with all these and other limitations the scheme is the biggest attempt yet made in Great Britain to supplement the national system of vital statistics. It should give us a measure of the extent of incapacitating sickness in this large part of the population, should reveal the causes in their order of importance, variations by age, sex, locality, and occupation, and should reach out to tell us why.

The fourth report on the scheme, that for the year to June 30th, 1934, has now been published.[1] It contains, in addition to all the features of the previous reports, special studies on sickness in certain occupational groups (mining and agriculture and fishing), the increase in infectious diseases, and sickness in the Highlands and Islands. It is the best of the series, and should finally remove any doubts that may have been entertained about the value of the scheme. In some respects the sickness returns for the year are the most favourable since the summaries were first compiled four years ago. The insured population numbered 1,689,468, and the total number of completed incapacities was 341,066 (a rate of 202 per 1000 insured persons) compared with 401,744 (238 per 1000) in 1932–33, 359,811 (213 per 1000) in 1931–32, and 378,742 (224 per 1000) in 1930–31. Married women show by far the highest rates in each of the four years, but these are coming down faster than the rates for single women and for males. The days of incapacity amounted to 16,870,515, equivalent roughly to 10 days of sickness per insured person during the year, a figure that is appreciably lower than that for last year and slightly lower than the average (10–28 days) for the preceding three years. The improvement over the previous year is mainly due to a big reduction in cases of influenza and, in a lesser degree, its correlatives—bronchitis and pneumonia. There were increases in infectious diseases (chiefly scarlet fever, erysipelas, and diphtheria), minor diseases of the upper respiratory tract, tonsillitis, skin diseases, superficial septic and inflammatory conditions, rheumatism, accidents, and nervous debility, and slighter increases in tuberculosis and cancer. Sex and age differences in the incidence and duration of incapacities are set out in a series of tables but, apart from the rapid improvement in married women, there is no outstanding new point to record. The geographical distribution shows, as last year, a lower incidence and higher duration in burghs than in counties. The detailed analysis brings out that the incidence-rates in mining areas are conspicuously high, and in the highland rural districts conspicuously low. Among nine broad groups of occupations, mining shows by far the highest sickness-rates for males (326 per 1000). It is followed by textile and paper workers (208), makers of foods and drinks (194), transport workers (192), agriculture (165), metal trades (164), commercial occupations (160), building trades (156), and personal service (138).

The special study on sickness among miners during the three years ended June 30th, 1933, is expressly a preliminary effort to introduce the subject of occupational sickness. The difficulties are pointed out. Selective recruitment, for example, the concentration of particular industries in a few localities and other factors have to be allowed for. But the difficulties will not seriously impede a study that is of major importance to preventive medicine. Hitherto knowledge of occupational sickness has depended mainly on death-rates. As previous reports in this series have pointed out, there are gross differences between causes of death and of incapacitating sickness, and a large proportion of the total incapacities are not such as to terminate fatally. Preventive measures therefore may easily miss the mark if they are based only on a study of death-rates. It is brought out in this special study that, over the three years, miners have an average annual incapacity of 18 days per miner, compared with 8·7 days for other men. Men in the coal-fields not being miners have a lower average duration of incapacity not only than miners but than all males in Scotland (less miners)—a fact which

[1] Department of Health for Scotland. Report on Incapacitating Sickness in the Insured Population of Scotland during the year July 1st, 1933, to June 30th, 1934. Edinburgh: H.M. Stationery Office. Pp. 72. 9*d*.

suggests that the high rates of miners are specifically occupational. The higher incidence among miners holds good in each individual age-group. Injuries, septic and inflammatory skin conditions, anæmia, gastritis, D.A.H., and tachycardia are all two or three times more frequent in miners than in other males. Bronchitis, pneumonia, diseases of the veins, and cardiac debility are also more frequent; but tuberculosis, malignant tumours, diabetes, and nervous debility have a lower incidence. On the other hand, agricultural workers show a higher incidence than the average for all male workers in influenza, infectious diseases, suppurative and inflammatory skin conditions, diseases of the skin, and hernia; and a lower incidence in tuberculosis, neurasthenia, anæmia, and diseases of the veins. It is shown however that factors other than occupational have a definite bearing on sickness experience among agricultural workers, and it may be possible to segregate these factors in later studies. One broad fact that emerges from this collection of data is the importance, as causes of invalidism in the industrial population, of conditions—rheumatism, diseases of the upper respiratory tract, gastritis, and so on—that are not notifiable and are left untouched by the public health authorities. It is the work of the general practitioner that moves into the foreground, a fact that gives a new emphasis to the plea for coöperation between the general practitioner and the medical officer of health.

THE THERAPEUTIC USE OF ANTITYPHOID SERA

DURING last year Dr. A. FELIX and his colleague, Miss R. M. PITT, have published communications in our columns and elsewhere recording new observations on the antigenic structure of the typhoid bacillus, and on the significance of the various antigenic components in infection and immunity. The picture that emerges from these studies, taken in conjunction with earlier observations by FELIX and by many other workers, shows at least three different antigenic components of the typhoid bacillus. One of these (the H antigen) is contained in the flagella, and would seem to have little if any significance from the point of view of prophylaxis or treatment, since the presence in the serum of the corresponding antibody appears to afford no immunity to infection. Another (the O antigen) is situated in the bacterial bodies. It is immunologically important; but it would appear from FELIX'S more recent studies that it is concerned rather with the toxic action of the bacterium than with its powers of invasion and multiplication within the tissues. The third component (the Vi antigen) is apparently associated in some intimate way with the invasiveness of the bacterium. It is fully developed only in highly virulent strains; and the corresponding antibody affords protection against the invasive activities of strains of this kind.

The bearing of such studies on the practical problems of prophylaxis and treatment is obvious. Their significance in regard to the proper control of the strains employed in the preparation of a typhoid vaccine has already been considered by many workers. It is clear that the therapeutic side of the picture—the efficacy of an antityphoid serum known to contain the antibodies in question—needs careful re-examination in the light of this new knowledge, and last week we published a paper by FELIX which records a preliminary trial with two specially prepared antisera containing anti-O and anti-Vi antibodies in adequate concentration. The results of this trial, which was carried out in Palestine with the coöperation of the Colonial Office and of the local government, were highly encouraging. The number treated (43) was not large; and the control group, who were given normal horse serum, was smaller still (17), owing to the fact that the success of the specific serum treatment made it impossible to withhold it from cases occurring later in the inquiry. With such numbers little significance could be attached to any ordinary difference in the case-fatality rates; and, presumably for this reason, the number of deaths in the control group is not stated. It would, we think, have been better to include it, since it is given for the treated group. The conclusion as to the efficacy of the serum is based on the observation that, while the patients treated with normal serum obtained no benefit, those receiving the antityphoid sera showed a marked, sometimes a dramatic, abatement of toxæmia, and a somewhat less striking decrease in pyrexia. It is noted that the predominance of the antitoxic effect suggests that the antibody acting on the O antigen was largely concerned in the beneficial results. This particular trial clearly affords no basis for any assessment of the relative therapeutic value of anti-O and anti-Vi antibodies, since no patients received O antibody alone. It is proposed that such a comparison should be made in future trials; and this is clearly desirable, since, until we have definite information on this point, we are not in a position to standardise antityphoid sera, and without such standardisation we cannot ensure the optimal clinical results.

PAY-BEDS

THE provision of pay-beds is now accepted as part of the function of voluntary hospitals. Of recent years the demand for these beds has increased considerably and the accommodation for paying patients has become wholly inadequate to meet their needs. We recorded last week the second reading in the House of Lords of a Bill introduced by Lord LUKE, The Voluntary Hospitals (Paying Patients) Bill, which, if it becomes law, will save hospitals the expense of obtaining private Acts to enable them to satisfy what has become an urgent demand. When the Bill emerges from the Committee stage it will no doubt contain two important safeguards, the one to protect the accommodation already available for the poor from diversion to other use, and the other to prevent the beds at, say, 5 to 7 guineas a week, provided for people of limited means, from being given to patients who can well afford to pay full fees for accommodation, maintenance, and treatment. With these safeguards incorporated the Bill is assured of wide support both from the public

and the medical profession. The opposition seems to be coming from those who, like Lord SANDERSON, wish to see all medical services municipalised or nationalised, and who look forward to the time when all sickness will be a charge on the State.

A number of reasons have contributed to the popular demand for increased pay-bed accommodation. Illness is less readily tolerated and health more anxiously sought than it was a generation or more ago. There is certainly less fatalism with regard to ill-health, attributable, we may hope, to the wider public realisation of what medicine has now to offer in the alleviation and cure of sickness. It is common knowledge, for instance, that acute appendicitis can be cured by operation, and that a failure to recognise it may be fatal; that under optimum conditions a broken bone can generally be set so that good functional recovery results; that dyspepsia, even of long standing, may be due to an ascertainable cause whose removal leads to permanent relief. But it is also true that for the diagnosis of acute appendicitis a specialist opinion may on occasion be required, and for its surgical treatment a competent surgeon, an operating theatre, an anæsthetist, and skilled assistance; that an X ray plant may be necessary not only for the diagnosis of a fracture but also for periodic control of its progress under treatment in plaster or splint; and that for the treatment of dyspepsia not only radiological examination of the teeth and of the whole digestive tract may be needed, but pathological investigation of the contents of the stomach and of the excreta, as well as of the blood, together with continued observation of the patient—all this in what may seem at first to be a simple case. Reckoned in terms of money the thorough investigation of a case of serious illness may easily cost £20–£50, and its treatment £100–£200. The reduction of this expense associated with admission to a pay-bed in a voluntary hospital is chiefly due to economy in the cost of special investigations, and this is worth noting, since it is customary, but rather unfair, to blame nursing-homes for the great expense of illness. It may well be far less expensive to be ill in a nursing-home than in a private house, notably when the patient is ill enough to need some nursing by night as well as by day, but not so ill as to require the full-time services of a nurse. The real grievance of patients against the accepted method of organising charges and service in nursing-homes is that the fees payable, however high, are not intended to cover full-time service even for the crucial days following a severe operation, and the bill for the first week may well be swelled by a charge of 6 to 8 guineas for "special nursing." This custom applies also to patients in private rooms in hospitals, and a welcome reform would be the introduction of a weekly charge to include all nursing deemed necessary by the matron or the medical man in charge. The fees to include ordinary nursing attention payable in hospital private beds and in nursing-homes overlap to the extent that most nursing-homes have rooms available at 8 and 9 guineas a week and that pay-beds cost 3 to 10 guineas a week, while in at least five hospitals, according to the current edition of the Hospitals Year Book, private rooms are available at 12 guineas a week.

Among the biggest and therefore most dreaded expenses of illness, however, are the fees due to specialists, and it is here that a patient in a pay-bed may save a good deal. Outside the hospital the professional man has to give much of his personal attention and time to the details of management of any patient under his care. In a pay-bed he will be assisted in this respect by his resident medical officer, and therefore he can afford to be available for consultation, when required, for a smaller fee. Moreover, having more patients in one building and that building being in close proximity to his hospital wards, he can economise the time otherwise spent in going from one patient's house or nursing-home to another. Even more important than these considerations may be the fact that the specialist's habit of giving voluntary service to the sick poor affects his attitude to the patients under his care in the neighbouring paying block, and he is more inclined to charge a very much reduced or even a nominal fee for the work he does there. This applies also and to an even greater extent to the special investigations, because the plant required, whether biochemical, pathological, or radiological, is readily accessible, being provided by the voluntary hospital for its ordinary patients and thus available for paying patients of small means at cost or little more than cost price for each investigation done. The charges payable for such services by patients able to pay 12 guineas a week for a room should, of course, be maintained at the level normally payable outside the hospital, whatever the adjustment decided on as to the proportion to be kept by hospital and specialist. Specialists gain something from the possibility of accepting modest fees from patients who wish to pay their consultants but are unable to do so when admitted to the general wards reserved for the sick poor. Moreover, apart from the convenience of having many patients aggregated under one roof, they are able to keep patients under their care with whom they might otherwise lose touch.

Lastly the point of view of the voluntary hospitals is to be recalled. It is obviously their duty to provide a service for a social class which particularly needs it. The wants of the sick poor are being increasingly well provided for, but to those with limited incomes sickness brings a financial embarrassment for which it is difficult to make adequate provision. Good work done in a pay block will moreover bring gratitude to the institution that provides the beds, and this will increase the public support on which voluntary hospitals largely depend. There is of course another aspect for the patient. It is difficult to assess the comparative advantages and disadvantages of institutional treatment. Expense is often a determining factor in sickness and ill-health, but economy and efficiency do not necessarily go hand in hand, and while there are advantages in being in an institution where a resident medical officer is available, there are counter-advantages in being

under the sole charge of a more experienced man. The position is perhaps comparable to the provision of material goods to the extent that a big store offers better goods at a more uniform price than do many little shops; but for the very best goods a man may have to go to a number of shops and they will probably be the most expensive. There will undoubtedly be a steadily increasing provision of pay-beds in the immediate future, and this will be to the advantage of the public, the voluntary hospitals, and the medical men staffing these hospitals. But it has to be recognised as part of a tendency towards the reception of nearly all sick people of every class in hospitals, and this tendency, unless checked, will end in vast changes in the organisation of medical services.

ANNOTATIONS

HUGHLINGS JACKSON MEMORIAL DINNER

LAST week the neurological section of the Royal Society of Medicine celebrated by a dinner the centenary of the birth of Hughlings Jackson, which occurred on April 4th, 1835. The section is the reincarnation of the Neurological Society of London, of which Hughlings Jackson was one of the founders in 1886 and the first president. The continuity of spirit between the two was expressed by the presence at the dinner of two original members of the Neurological Society, Sir Thomas Barlow and Sir William Hale-White, and of a number of Jackson's former residents and friends. Dr. S. A. Kinnier Wilson, president of the section, whose happy thought originated the celebration, said that Jackson was a man who lifted discussion and theory to a plane far above that of the ordinary physiologist. He himself had known Jackson only during the last few years of his life, but the actual time spent with Johnson by Boswell was surprisingly short, and Dr. Wilson's "Boswellising" of Jackson resulted in a record of great interest, some extracts from which he read. Jackson's philosophical insight and humour were both illustrated by his interpretation of Spoonerisms as the result of lack of coöperation between the two halves of the brain, and by his description of Carlyle's writing as "swearing to a very high power, swearing to the *n*th." Dr. James Taylor exhibited some Jacksoniana, and gave an account of Jackson's personality which revealed his capacity for evoking the devoted affection of those who knew him. Dr. Wilfred Harris also showed some Jacksonian relics, including a primitive ophthalmoscope, an instrument which Jackson with Sir Clifford Allbutt was responsible for introducing into general use. Dr. Harris said that Jackson benefited from not being over-educated, and was thankful that he never went to a university. His greatest teachers were Thomas Laycock, Herbert Spencer, Brown-Séquard, and Jonathan Hutchinson.

Hughlings Jackson's family was represented at the dinner by Dr. Douglas, his grand-nephew by marriage, who spoke of the interest with which news of the celebration would be received by his relatives in New Zealand. Prof. Bouman, of Amsterdam, presented to the section a book which had belonged to Jackson, to whom he applied Johnson's words concerning Shakespeare: he was not of one age, but of all ages, not of one country, but of all countries. Sir Farquhar Buzzard's reminiscences of Jackson began with his own infancy when he was the corpus vile of an experiment which Jackson said illustrated the simian character of the human infant. He ended his tribute to Jackson by describing him as a man of supreme intellect and supreme character. Prof. Edwin Bramwell traced Jackson's subtle charm to the contrast between his childlike simplicity of character and his great intellect. Even to Gowers he was "the master."

Formal commemorations of the great are apt to be as chilly as the statues and laurels in which they often find expression. This informal gathering, however, seemed warmed by the influence of Jackson's personality. He lived again in the memories of those who had known him, and a generation which never knew him was enabled to share and so to perpetuate that intimate knowledge which clothes biography in flesh and blood.

REFINEMENTS IN AUSCULTATION

THE advance of medicine in these latter days has something in it akin to the fever of a gold rush. It draws an army of investigators who, like prospectors in auriferous river-beds, toil long and hard in the hope of finding nuggets, and are rewarded, most of them, with a handful of dust. The worked-out valley is in time abandoned for a more promising one, but there sometimes remains years later an odd nugget that was missed in the rush. Trousseau's discovery of the effect of iodine in Graves's disease, picked up again by Plummer, is an example. Dr. C. O. Hawthorne suggests that he has come upon another, though perhaps a smaller one, in the Differential (Double) Stethoscope [1] proposed by Dr. S. Scott Alison of the Brompton Hospital in 1858. The modern binaural stethoscope was then already in existence, though still a little clumsy in form. Dr. Alison split it a stage further by attaching two separate chestpieces to the two separate earpieces, and claimed certain advantages. The breath sounds from symmetrical points on the chest can be auscultated simultaneously, and their intensities compared; if the sounds from one side are similar in quality to those of the other, but louder, the listener has the illusion that the quieter side is silent. If murmurs only are heard in some parts of the precordium and the heart sounds are audible elsewhere, the double stethoscope can be used to combine the murmurs with the sounds, and facilitate the timing of the former. The intensity of a given murmur in different parts of the precordium can be graded. These procedures of course all require that the auscultator's two ears should be equally good at hearing.

The double stethoscope might deserve the revival that Dr. Hawthorne urges, if we felt it worth while to refine the art of auscultation. But there are every day fewer and fewer physicians who would deny that radiography gives more accurate information about the contents of the chest than do the classical methods of physical examination. That is not to say that percussion and auscultation are to be dispensed with. Where the changes are gross their information is often clear and is to be acted on. But where the changes are slight or the issue is in doubt, the radiogram will be at least as reliable as the most highly trained hand and ear, and it may be questioned whether the years of assiduous practice necessary to cultivate the refinements and the minutiæ of percussion and auscultation are in these days and in this country worth the effort. The issue should be judged without

[1] Irish Jour. Med. Sci., February, 1935, p. 49.

the prejudice that often sets the advocates of "clinical" and "laboratory" methods in opposite camps. The X ray tube is no less "clinical" than the thermometer and the sphygmomanometer, it is only more expensive; but it is becoming increasingly accessible, and should be used neither more nor less than is justified by the greater value and precision of the results it gives.

THYROTOXICOSIS WITH NORMAL B.M.R.

WHEN goitre is of long standing the circulatory apparatus may be considerably damaged though the basal metabolic rate is not above normal limits. Even in young patients, however, good evidence of thyrotoxicosis—such as tachycardia, alterations in blood pressure, loss of weight, nervous symptoms, and ocular changes—may coexist with a B.M.R. within the accepted upper limit of plus 15 per cent. The possibility here arises that the figures obtained, while within the average normal range, may yet be high for the individuals concerned, and would fall with iodine administration or after operation. S. Gordon and R. R. Graham[1] report 71 cases of toxic goitre with normal metabolic rates—those with nodular goitre predominating, as might be expected. Partial bilateral thyroidectomy was done in 65 (incidentally without a death) and cure or improvement was noted in about 90 per cent. of these; but the average drop in the metabolism was only 2 per cent. in the diffuse goitres and 5 per cent. in the nodular. These figures are robbed of some significance, since the times elapsing between operation and the tests are not given, and more details of particular cases would have been welcome. There is little doubt, however, that the clinical picture to which attention is drawn—namely, thyrotoxicosis associated with a metabolism within the normal and little or not at all lowered by thyroidectomy—is not very unusual. It is one that seems to call for further study.

HEALTH OF THE ROYAL NAVY FOR 1933

THE first report by the new Medical Director of the Navy, Surgeon Rear-Admiral R. W. B. Hall (152 pages, 2*s.* 6*d.*), contains important changes in nomenclature. The terms "insanity" and "catarrh" have been abolished, a heading for "diseases of the breast" has been added, and "scabies" will in future be included among "diseases caused by metazoan parasites." The total force in 1933 was 83,125, the number sick was 503 per 1000, 10·02 were invalided, and 2·24 died; in actual numbers 42 died from injuries, 18 from tubercle, 17 by malignant growths, 9 from pneumonia, and 12 from other respiratory diseases. Dysentery occurred in *Norfolk* during January at Trinidad, and was cured with magnesium sulphate, grs. 60, in 2 teaspoonsful of water every hour till pain had disappeared, and stovarsol afterwards, grs. 2 twice a day, to kill the cysts. Of typhoid there were 3 cases with 1 death; of 19 paratyphoid cases none was fatal. Of influenza there were 3770 cases, of which 1 died in Edinburgh. Of malaria 210 cases are reported with 2 deaths; one of these had an attack in December from which he was thought to have recovered; but in January, whilst playing football, he was struck in the abdomen by the ball, appeared little inconvenienced at the time, but died a few hours later with a ruptured spleen. It is well to use red electric light bulbs in malarial regions; they attract mosquitoes much less than the white ones. A stoker under treatment for gonorrhœa developed a gonorrhœal septicæmia and died suddenly on the nineteenth day. A marine during field training was bitten, it is supposed by an adder, on Dartmoor; he was seriously ill with shock and brawny swelling, but after vigorous treatment, strychnine and antivenene intravenously, he went back to duty in eight days. Bathing at Malta on August 30th, a man grazed his nose on the bottom. The abrasions became septic and when he reached the Red Sea he had lockjaw; there were only 12,000 units of antitetanus serum on board, and his ship was sent at once to Aden, where he died on the next afternoon of tetanus. Of tuberculosis 176 cases came to notice as against 206 in 1932. Venereal diseases were fewer than in 1932, even allowing for cases of chancroid, which are now scheduled as diseases of the generative system. During an operation on a case of perforated duodenal abscess at Malta, a small black object found was identified as an Italian bee; it was suggested that it might have been swallowed with honey and have given rise to the abscess. Carbon tetrachloride, in use for fire extinguishers, has given rise to alarming cases of anuria at a naval hospital.

ACUTE MECHANICAL OBSTRUCTION

IN spite of indefatigable attempts by laboratory workers to solve the problem of intestinal obstruction, this form of abdominal crisis remains as much an enigma as it was half a century ago. A recent clinical study of acute mechanical obstruction by Amos Fey and W. R. Cubbins[1] does, however, clarify the situation as it exists to-day. They rightly say that "any observer who has waded through the mass of literature on experimental work which has appeared during the last decade will agree with the authors that certainly most of it has been fruitless and serves only to confuse us in our efforts to lessen mortality." In their review of 241 cases of mechanical obstruction (excluding external herniæ), in which there was a mortality of 42 per cent., they point out that the death-rate has not fallen in the last thirty years. Their own emphasis is chiefly laid on early relief of the obstruction—for which of course early diagnosis is essential. Pain and vomiting remain the most important and constant symptoms. The test of an enema must be very carefully done to avoid all chance of mistake, and it should be recognised that some result from an enema is no contra-indication to surgery unless the patient is relieved subjectively. Physical signs, as most authorities have shown, are not very striking. Though distension usually increases with the duration of the obstruction, there were in this series some cases of complete obstruction with gangrene but with little distension. On the other hand, tenderness on palpation may be present more often than one would gather from surgical text-books. An abdominal finding of great importance is increased peristaltic activity revealed by auscultation; the violent contractions of the bowel are an attempt to force the bowel contents onward, and when they cease as a result of exhaustion the outlook becomes serious. Cessation of peristalsis nearly always occurs with the onset of gangrene and usually precedes it. Writing on treatment Fey and Cubbins comment on the numerous recommendations of enterostomy that have appeared during the last fifteen years; one is led to believe, they say, that enterostomy is a definite and distinct life-saving procedure, for it is often advised without mention of any attempt to relieve the obstruction. Their own records do not support this contention; the mortality of enterostomy is high, and it does not prevent

[1] Canad. Med. Assoc. Jour., February, 1935, p. 162.

[1] Surg., Gyn., and Obst., March, 1935, p. 738.

gangrene unless the mechanical obstruction be relieved at the same time. Justification is provided also for another view, long held by many English surgeons, but not generally accepted—namely, that acute intestinal obstruction with gangrene is best treated by resection; exteriorisation and gun-barrel fistula, so attractive as emergency measures, have a higher mortality. Important factors in the high death-rate from enterostomy are infection of the abdominal wall and peritoneum, digestion of the abdominal parietes, exhaustion and starvation from loss of intestinal contents, and the secondary operations necessary for closure. Far too many surgeons seem to accept it as the operation of choice when obstruction has resulted in gangrene, the suggestion being that the patients are too ill to stand anything more drastic. This paper points out the error and danger of such an assumption.

SIR JAMES MICHELLI

WITH the death of Sir James Michelli on April 3rd there passes a figure well known to the medical profession. For forty years, from 1887 to 1927, Michelli served as secretary to the Seamen's Hospital Society—a record probably unique in the annals of hospital administration—and he came to Greenwich with six years' experience as secretary of St. Mary's Hospital, Paddington. Since 1927 as hon. treasurer he had retained his association with the great charity which he served so long and faithfully. When Michelli joined the Seamen's Hospital Society in 1887 its resources were at a low ebb, and the establishment consisted solely of the "Dreadnought" at Greenwich, already a time-worn institution and badly in need of repair. Under his guidance and largely owing to his inspiration, the work of the society increased to such an extent that at the time of his death it was responsible for the management and maintenance of four hospitals, a sanatorium at Bramshott, and a convalescent home at Cudham. This expansion entailed a corresponding increase of income from subscriptions, and it is said that the assets of the society increased tenfold during Michelli's administration. But his chief and most lasting work was surely the institution of tropical medicine as a factor in the medical education of this country, and this came about as the result of his close association with Sir Patrick Manson and Mr. Joseph Chamberlain. The Royal Albert Dock Hospital was built in 1887 and there, in the early nineties, he came under the influence of Manson and had the sagacity to discern the importance of his researches into malaria; and it was to Michelli that Manson first expounded his plan for the institution of a school of tropical medicine in London, with the result and owing to his energy that the school opened its doors to students in 1899. From that time Michelli was the pivot in the development of tropical medicine. He was responsible for the raising of the Chamberlain and the Milner Funds, making together a quarter of a million sterling, to further the aims of this specialty in London. And he was instrumental in the final inauguration of the new school in 1924. Born in Cork, where his father was Austrian consul, Michelli possessed in high degree the lovable qualities of the country of his birth. He was a good mixer, and he shared with the late Lord Knutsford the distinction of being the "Prince of Beggars." He continued indeed to beg so persistently and so firmly that few, if any, could be found to resist him. He was a familiar figure at almost every public function, and was always to be found dodging in and out of Government departments and other places where he thought he could obtain sympathy and material support for the objects which he had so dearly at heart. The welfare of seamen was his hobby and his sole aim.

A CHRONICLE OF CHILD WELFARE

THE student of child welfare should be grateful to Dr. McCleary [1] for having sifted so carefully such an enormous volume of facts and theories, and presented them in compassable form. Some dozen of the 14 chapters in his book are mainly historical, and certain of the records are of peculiar interest. This is, we believe, the first time that any writer has taken the trouble to select from the original reports in the *Times* the salient points in the history of Margaret Waters, the notorious baby-farmer who, in 1870, was tried and executed for murder of the infants committed to her charge. This case created a great sensation, and, together with a similar one relating to a woman named Mary Hall, doubtless had considerable influence in securing support for the efforts of Dr. J. B. Curgenven and others which eventually led to the passing of the first Infant Life Protection Act in 1872. A chapter bearing the prosaic title "How the State Recognition of Midwives was secured" sets out a story full of romance and heroism. It describes the efforts of such men as Ambroise Paré, the Chamberlens, and others who gradually lifted the practice of obstetrics from its despised estate. In the nineteenth century, when puerperal fever was still taking a desperate toll of mothers' lives, other pioneers arose who refused to be satisfied with attributing a maternal mortality which sometimes reached 200 per 1000 live births to such vague causes as "epidemic influence" or "atmospheric conditions." The author tells how Oliver Wendell Holmes in America and Ignaz Semmelweis in Vienna faced the embittered attacks of unenlightened contemporaries for their courage in publishing evidence of the communicable nature of puerperal fever. Holmes considered the doing of this "humble office" sufficient cause "to be thankful that I have lived, though nothing else good should ever come of my life." Although Semmelweis was less fitted than Holmes to contend with the onslaughts of his opponents, and died in a mental hospital, he demonstrated, by his own carefully controlled experiments, the nature of puerperal fever, and rightly merits the place which Dr. McCleary accords him as "one of the great figures in the history of medicine."

HOMICIDE

A RECENT study of homicide statistics, conducted by two officials of the Metropolitan Life Insurance Company of New York, explores the unenviable record of the United States as the only important country to show more homicides in post-war than in pre-war years. The authors have considered questions of sex, age and geography, seasons, occupations and economic cycles. Few solid conclusions emerge. The motives of murder are manifold and the personal histories of the criminals and their victims are seldom fully known. Two points are clear. First, a remarkable number of American homicides is due to the use of firearms. The proportion of firearm homicides to the general total in the U.S.A. is roughly two-thirds; in England and Wales where, apart from any difference in national habits, there are statutory restrictions on the purchase

[1] The Maternity and Child Welfare Movement. By G. F. McCleary, M.D., D.P.H. London: P. S. King and Son, Ltd. 1935. Pp. 227. 7s. 6d.

and possession of firearms, the corresponding percentage is as low as 13. Secondly, the American statistics confirm the belief that the murderer is not usually a member of the criminal classes. Evidence of their previous careers may be inadequate, but it is stated that, roughly, 75 per cent. of the men and 90 per cent. of the women charged with murder in the U.S.A. were first offenders. Homicide indeed is largely unpremeditated.

Similar investigation of the incidence of murder is possible in England. We have the excellent Criminal Statistics annually published by the Home Office, the copious evidence given before the Select Committee on Capital Punishment in 1930, and the Command Paper (No. 1787 of 1922) which, at a time when the public was concerned at the number of unsolved murder mysteries, gave a reassuring account based on the comparative figures for the two-year periods immediately before and after the war. From these sources we can learn many facts—that murder, for instance, is almost exclusively a masculine offence, or that a multiple murderer often commits suicide. We have our problems also. Are we satisfied that capital punishment is a deterrent, that mental instability is sufficiently understood in criminal courts, that indiscriminate publicity is desirable for murder trials, and that no better classification of the degrees of homicide can be evolved?

WHAT IS ADDICTION?

ADDRESSING the Society for the Study of Inebriety last Tuesday Dr. W. E. Adams pointed out that the word "addiction," as applied to drugs, is of comparatively recent origin. Its implication is that the addict is bound to a master, and it is thus peculiarly applicable to the state induced by habitual use of such drugs as morphine, heroin, and cocaine. Once a man admits one of these into his life it, and not he, will be the master. This is one prime characteristic of addiction, said Dr. Adams; another is connected with the motive which prompts resort to drug-taking. Generally speaking, and in western countries, this motive is the need for some agent which will temper the wind of reality to the psychically shorn lamb; for the victims of addiction are, almost always, not quite normal psychically. A third feature is the development of what is known as "craving"—an urgent need for the continuance of the drug. On its being withheld there is a distressing train of symptoms, both physical and mental. Also, in cases of true addiction, we have a "tolerance" or a gradual accustoming of the tissues whereby the seasoned addict is enabled safely to take doses of a magnitude that earlier would have speedily ended his life. Lastly the masterful character of the drug is shown by any almost uncontrollable tendency to revert again to it after apparent cure. Thus addiction, said Dr. Adams, may be defined as a state of bondage to a masterful drug usually, but not always, of the narcotic class, and manifested by craving, tolerance, intense discomfort of a specialised character on withdrawal of the drug, and a tendency to relapse. Its origin lies in a defect of the personality which may be of varied kind, but is most commonly of the nature of an inability to cope with reality. These criteria may usefully be applied to certain doubtful forms of addiction—e.g., tobacco-smoking and tea-drinking. Neither tea nor tobacco has the dominating character of opium, morphine, or cocaine, and the like; but if the personality be weak they may be powerful by comparison, and in certain circumstances either of them may produce all the stigmata of a true addiction.

COMMON SALT IN ADDISON'S DISEASE

WE have already reviewed the work upon which the use of sodium chloride in Addison's disease depends, and also some records of therapeutic success.[1] Conclusive evidence on the relative value of sodium chloride and cortical extract, and on the relative importance of the sodium and chlorine ions and their relationship to other mineral elements is still awaited. M. A. Blankenhorn and J. M. Hayman[2] have recently recorded the successful treatment of a patient in crisis with intravenous sodium chloride when cortical extract alone had apparently failed. In the subacute phases of the disease, salt by mouth was adequate to maintain a relatively good condition; and for a period of 17 days the daily dose of 12 g. Nace was replaced by a mixture of Na_2SO_4, Na_2PO_4, and Na_2CO_3, in amounts that contained an equal quantity of sodium. Several interesting questions arise from this communication. Although, according to A. M. Snell,[3] cortical extract alone may be effective in Addisonian crisis, most observers, notably Rowntree and his collaborators, and Levy Simpson, have urged the additional use of intravenous saline, this being a more direct way of remedying dehydration and blood concentration. To rely only on fluids and salt in crisis might jeopardise the life of the patient unnecessarily when a potent cortical extract is available. In the treatment of the more chronic phase of the disease, it is yet to be determined whether the use of salt alone, in preference to potent cortical extract, has anything to recommend it other than its great cheapness and the fact that it is effective when given by the mouth; this is not to minimise the enormous importance in clinical medicine of these two considerations. The patient described by Blankenhorn and Hayman was treated for the greater part of the time with salt only, and died after five months. R. F. Loeb and D. W. Atchley stated[4] that "salt-treated patients retain most of their pigmentation, they are sensitive to cold and tire more easily than normal individuals, and the systolic blood pressure, while definitely above shock levels, tends to be low, as does the concentration of sugar in the blood;" and that salt feeding will not maintain life for more than three weeks in completely adrenalectomised animals. Loeb emphasised the loss of sodium as an essential factor in adrenal insufficiency, and the fact that Blankenhorn and Hayman were able to replace the chloride by less nauseating salts of sodium is both of theoretical and practical interest.

In considering whether the low level of serum sodium can be correlated with the symptomatology of Addison's disease, other mineral elements come into consideration. Loeb and Atchley found that "the potassium content of the blood which is elevated to varying degrees in acute insufficiency of the adrenal glands returns to normal levels with salt administration." Urechia, Dragomir, and Retezeanu have found that cortical extract reduces the high concentration of blood potassium in a patient with Addison's disease to normal levels.[5] They also suggest that the high toxicity of ionisable potassium and the selective action of this poison on the muscles, explain very well the asthenia associated with its retention. It would appear that there is still much to be learnt about

[1] THE LANCET, 1934, i., 137; ibid., 1934, ii., 883.
[2] Amer. Jour. Med. Sci., March, 1935, p. 419.
[3] Internat. Clin., 1934, iii., 46.
[4] Med. Clinics of North America, 1934, xvii., 1317.
[5] Bull. et mém. soc. méms hôp. de Paris, March 4th, 1935, p. 700.

mineral and water balance in adrenal insufficiency, and the inadvisability of limiting such investigations to chloride or sodium is clear.

SNAKES AFTER DINNER

MEMBERS of the Hunterian Society, assembled for their annual general meeting last Monday at Simpson's Restaurant, Cheapside, were looking forward to an after-dinner lecture by Lieut.-Colonel R. H. Elliot, F.R.C.S., on snakes and their bites. At the last moment a sudden indisposition prevented Colonel Elliot from being present and Mr. Mortimer Woolf, the society's librarian, was faced with the unexpected task of demonstrating the slides and cinematograph film that were to have accompanied the lecture. With the expert assistance of Dr. Burgess Barnett, curator of reptiles at the London Zoo, he at least made the audience aware of the fascinating nature of the lecture they had missed. Slides were shown illustrating the mechanism of snake-bite, the evolutionary development of the poison-fangs, and the methods used for extracting the venom from snakes for the production of anti-snake bite sera; but in the absence of the lecturer even more interest attached to the remarkable film taken by Captain Newnham Deane at the snake farm of the Butantan Antivenine Institute, Brazil. There, in a wooded enclosure, fenced by a snake-proof wall and moat, were to be seen hundreds of snakes awaiting "milking." Local farmers are encouraged to send all snakes they may encounter to the institute, with the result that a useful species that feeds on the dreaded fer-de-lance was much in evidence in the film; it was shown first eating and then being compelled to regurgitate its prey which seemed little the worse for the experience. Walking unconcernedly among them an attendant picked the snakes from the ground or raked them from trees to extract their venom into a Petri's dish—venom which is valued at £60 an ounce. The cordial reception given to the film, and the expressions of gratitude to Dr. Barnett, left no doubt of the success of the valiant efforts made to save the evening from disaster.

SERUM TREATMENT OF CEREBRO-SPINAL FEVER

SKIN reactions following the intradermal inoculation of filtrates of fifteen-day broth cultures of meningococci were first described by Erlich, Popowski, and Przesmycki in 1925.[1] Six years later Ferry, Norton, and Steele [2] confirmed this observation by obtaining similar reactions in human beings following the intradermal inoculation of filtrates of four to six days broth cultures of meningococci of all types. From further investigation Ferry [3 4] has since concluded that filtrates of broth cultures of meningococci contain a diffusible toxin, and that antitoxic sera may be elaborated for all types of meningococci by the inoculation of horses with the respective filtrates. A polyvalent antitoxic serum obtained from Ferry's filtrates has now been provided for therapeutic purposes and the paper by Dr. Banks in our present issue contains a record of the first clinical trial of this serum in England. As Banks points out, the number of cases treated with this antitoxic serum in England (25 in all, with 7 deaths) is too few to enable any conclusions to be drawn about the relative therapeutic merits of the antitoxic serum and the "antibacterial" serum now in general use. The results reported by American clinicians certainly seem to show that the antitoxic serum is the more active. Thus Hoyne,[5] of the Cook County Hospital, Chicago, reports that death occurred in 20 out of 85 cases of cerebro-spinal fever treated with polyvalent meningococcal antitoxic serum, whereas 96 died out of 211 treated with the usual polyvalent antibacterial serum. It is important to note, however, that in 40 of the cases quoted by Hoyne bacteriological diagnosis was not made. On the whole the time has probably not come for the general adoption of the antitoxic serum as a method of treatment in this country. More controlled clinical research is required, and owing to the fortunately low incidence of the disease in England this will necessarily take some time.

From the bacteriologist's point of view the position is equally uncertain. In the first place, it is not yet clear whether the filtrates of meningococcal broth cultures contain anything other than the products of the very rapid autolysis of the organism. Substances poisonous to guinea-pigs on subdural inoculation undoubtedly occur in the filtrates, but they also occur in filtrates of other neisseriæ grown under the same conditions. Secondly, the appearance of the poisonous substances in the broth cultures is paralleled by the development of products of bacterial destruction such as precipitinogens. Again, protection experiments on animals with antitoxic sera provided by Ferry and with antitoxic sera made from English strains of meningococci have not yet confirmed the happy results obtained by the American workers. Finally, with regard to the therapeutic antitoxic serum itself, it must be pointed out that the system of arbitrary units adopted by its manufacturers is one which is not acceptable to English bacteriologists, and practitioners would do well to view critically statements concerning units which are not admitted by the Standards authorities of this country.

WE regret to announce the death from pneumonia on April 7th of Dr. John Braxton Hicks, M.R.C.P., at the age of 50. Dr. Braxton Hicks was pathologist in charge of the L.C.C. group laboratory at Lambeth.

Summer Time, which has already been in force a fortnight in France, will commence in Great Britain, Ireland, the Channel Islands, and the Isle of Man on Sunday morning next, April 14th, at 2 A.M., when the hands of timepieces should be advanced one hour. It will end on Sunday, Oct. 6th.

A SCHOLARSHIP of £200, open only to the sons of medical men, and tenable at St. Bartholomew's Hospital Medical College, will be offered for competition on May 27th. The scholarship will be confined to candidates who have passed London Matriculation, or obtained exemption from it. The examination will be conducted in (1) English; (2) French or German; (3) mathematics; (4) two other selected subjects, and the standard will be similar to that of Matriculation. Intending candidates should apply for further information about this Helen Cave Memorial Scholarship from the Dean of the Medical College, St. Bartholomew's Hospital, London, E.C.1, before May 1st.

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[1] Erlich, M., Popowski, St., and Przesmycki: Compt. rend. Soc de biol., 1925, xciii., 943.
[2] Ferry, N. S., Norton, J., and Steele, A.: Jour. of Immunol., 1931, xxi., 293.
[3] Ferry, N. S.: Ibid., 1932, xxiii., 315 and 325.
[4] Ferry, N. S.: Ibid., 1934, xvi., 133 and 143.
[5] Hoyne, A. L.: Jour. Amer. Med. Assoc., March 23rd, 1935, p. 980.

MANSFIELD HOSPITAL.—An appeal for £10,000 is being launched by this hospital in an endeavour to wipe off its overdraft and eliminate heavy interest charges.

PROGNOSIS

A Series of Signed Articles contributed by invitation

XLVII.—PROGNOSIS IN TOXIC GOITRE

IF the natural course of a disease is known, and also the extent to which this can be altered by treatment, the prognosis can be stated with confidence, due consideration being given to the variations in constitution, temperament, and environment that are found in patients. In toxic goitre the course of the disease is extremely variable, and the personal and environmental conditions of the individual patient affect the course and possibilities of treatment to such an extent that the principles that guide the formulation of a prognosis cannot be stated briefly.

NATURAL COURSE OF THE DISEASE

Although the cause of the disease is unknown, the onset and the relapses are so frequently associated with certain events such as acute infections, especially acute tonsillitis, and mental strain and worries, that these must be regarded as ætiological factors. In a small number of patients in whom the onset is associated with a definite factor of this nature the disease may be of brief duration and after a course lasting a few months end in complete recovery. This short course appears to be related to the cessation or removal of a definite causal factor. The complete resolution of an acute tonsillitis, the enucleation of infected tonsils, and the satisfactory solution of a worrying financial situation or love affair may be quoted as examples. The presence of a definite ætiological factor and the possibility of removing this factor thus favours a short course and good recovery.

The more usual course is a long one continuing with remissions and relapses over a period of many years, and this must be expected if rapid recovery does not occur in a few months. Once the disease is clearly established complete recovery is improbable. A remission may last for many months or even years, during which the symptoms and signs of the disease may be barely perceptible, but a relapse may occur at any time and although such a relapse may be mild it may, on the other hand, be so severe as to cause death. Events of ordinary life, which scarcely affect the health of normal people, disturb these patients profoundly. If they can be guarded and their lives steered through calm waters they may continue for many years with moderately impaired efficiency. Sooner or later, however, the strain on their organs and tissues causes more definite disturbances of function, and a common sequel is auricular fibrillation with congestive heart failure that threatens life. Less often it is the mental faculties that give way. If a life of constant strain or repeated worries is inevitable the disease is likely to be more severe, and the onset of circulatory or mental troubles earlier.

In young women who have for many years suffered from vague ill-health with an appearance of anæmia, with constipation, various visceral neuroses, and lack of energy, there may arise at some point in their history symptoms of toxic goitre: tachycardia, tremors, nervousness, and a slight enlargement of the thyroid gland. The toxic goitre in these patients is usually mild and continues for many years, but it is only one factor in the disability and, as a rule, not the most potent factor. From the prognostic aspect this is an important group to recognise, for the results of treatment directed to the thyroid gland are disappointing and such treatment alone cannot be expected greatly to improve efficiency.

EFFECT OF TREATMENT ON THE COURSE OF THE DISEASE

There are two main lines of treatment whereby the course may be affected: (*a*) rest and removal of sources of infection or of worries and mental strain, and (*b*) diminishing the amount of functioning thyroid gland tissue.

(*a*) As soon as the diagnosis is made, treatment by rest must be instituted, and this should be carried out in an environment other than that associated with the onset. The accessory factors such as infected tonsils, teeth, and sinuses, and mental stresses, especially financial, family, and marital, must be weighed and dealt with if possible. If the disease is of short duration previous to the commencement of treatment, and a rapid improvement takes place, it is possible that recovery will be complete enough for a return to normal life and activities. If the disease has already been present for some years or if the improvement is not so satisfactory a chronic course of remissions, relapses, and ill-health is probable, and a life of even moderate efficiency and happiness is only possible under placid and protected conditions. In addition there will be an ever-present danger of a serious relapse that threatens life. The presence of a nodular thyroid gland is evidence of a repeated or prolonged disturbance of the functions of the gland and points to the probability of incomplete recovery and continuing relapses.

(*b*) Removal or destruction of a sufficient amount of the functioning tissue of the thyroid gland by means of surgical operation or irradiation will prevent the occurrence of the severer grades of intoxication, so that the danger of a relapse that threatens life is thereby removed. To effect this by irradiation takes several months at least and the results are uncertain. In the more severe cases the possible onset of dangerous relapses and complications, circulatory or mental, during these months of treatment must be considered. On the other hand, there is a danger to life as an immediate result of the operation of thyroidectomy. In the hands of surgeons experienced in operations on the thyroid gland this danger is negligible in uncomplicated cases, but in the hands of those who are not especially expert or experienced the danger is a real one and must be carefully weighed. Whenever possible operation should be delayed until a remission has set in. Careful selection of the most favourable time for operating and the administration of iodine cannot eliminate entirely this immediate danger.

Adequate treatment by surgery or irradiation can also restore the efficiency of the patient. Following sub-total thyroidectomy a return to normal activities can be expected at the end of three or four months. In many cases recovery is complete and all symptoms disappear, but mostly there remains some slight degree of excessive or of lowered activity of the gland, so that it is usually advisable for such a patient to avoid the more strenuous types of mental and physical exertion; but for all ordinary purposes the outlook for functional efficiency is good. To some extent it will depend on the possibility of avoiding the accessory ætiological factors already mentioned; an unhappy marriage, for example, will affect the prognosis adversely. From a review of the results of treatment after ten to fifteen years, the patients in whom a slight degree of hyperactivity persists appear to be happier and more efficient than those in whom a mild hypothyroidism has developed;

the administration of thyroid gland cannot be relied upon to compensate accurately for the deficiency.

In the type of case referred to above, in which the thyroid disturbance is but part of a general condition of ill-health, often of many years' duration, the general improvement resulting from treatment for the thyroid condition, including surgical treatment, is disappointing, and many such patients are more unhappy and inefficient after operative treatment than before. The prognosis in these cases will necessarily depend upon the relative importance of the thyroid in the disability of the patient. Even after sub-total thyroidectomy relapses requiring further treatment by operation or irradiation do occur, but these must be regarded as exceptional.

Use of iodine.—The reintroduction of the use of iodine in the treatment of toxic goitre has affected the the prognosis profoundly in that it has rendered the operation of thyroidectomy much less dangerous to life. It is probable also that by its aid the patient's readjustment following operation is easier and his ultimate efficiency increased. The value of iodine in diminishing the severity of relapses and in aiding in the establishment of remissions is also undoubted, but it probably has no effect on the ultimate course of the disease other than to diminish its severity, and it is doubtful if operative treatment can be avoided by its administration or if complete recovery can ever be accounted to it. If the disease is increasing in severity the remission that results from iodine is temporary, but if iodine treatment coincides with a natural remission the effect is prolonged. If operative treatment must be carried out before a natural remission sets in, the temporary iodine remission is the safest time in which to operate.

PROGNOSIS IN SPECIAL CIRCUMSTANCES

Circulatory disturbances.—Extrasystoles and auricular fibrillation, at first paroxysmal but later established, are commonly found in elderly patients with toxic goitre, even in quite mild grades of hyperthyroidism if the disease is of long standing; they occur also in younger subjects if the disease is severe. These disturbances of cardiac rhythm are a strong indication for treatment by thyroidectomy, and they and their effects upon the circulation disappear spontaneously in most cases with the improvement in the toxic goitre that follows successful treatment. In some patients the administration of quinidine is necessary before normal rhythm is restored. In a small number of cases the auricular fibrillation persists in spite of all treatment, and in these the ventricular rate must be controlled with digitalis; in many of these some other form of heart disease is present. A raised blood pressure is met with in toxic goitre, especially in elderly patients, which disappears or becomes less pronounced after recovery. In others it persists even after successful treatment. This condition should be regarded as an indication for diminishing the amount of functioning gland tissue so that the heart may be relieved as much as possible from extra and remediable stress.

Mental disturbances.—Although more frequent in middle-aged and elderly patients, serious disturbances may be encountered in young girls with severe hyperthyroidism. Prognosis must depend upon a careful evaluation of hereditary and familial factors, but in most instances it clears up following thyroidectomy, though there may be a period of greatly increased severity for some months following the operation, a period of great distress and anxiety to the relatives. In general, such disturbances should be regarded as an indication for operation rather than the reverse, but much care and consideration must be exercised before deciding on this line of treatment.

Glycosuria.—Disturbances of carbohydrate metabolism with diminished sugar tolerance and glycosuria are not uncommon, and may be of varying degrees independent of the severity of the thyroid disturbance. They are usually mild and disappear with the subsidence of the thyroid disease. They may persist though diminished in severity, and require continuous treatment as for diabetes mellitus, but are seldom progressive.

Amenorrhœa.—During the course of toxic goitre amenorrhœa is commonly found and pregnancy seldom occurs. Following recovery menstruation is re-established and successful pregnancies are frequently met with.

Proptosis.—Of all the symptoms of toxic goitre exophthalmos is the most persistent. Although a considerable diminution in the degree of proptosis slowly follows successful treatment for the toxic goitre and sometimes it disappears completely, some degree may persist indefinitely, and it is usual to recognise a brightness of the eyes or slight staring for many years.

Toxic goitre in childhood.—In children the disease may follow a stormy course and prove fatal unless treatment by thyroidectomy is carried out before the operative risks are too great. The principles of prognosis are essentially the same as in adults, but in the milder cases treatment by rest and general measures may be persisted in for a longer period, for the probable course of the disease can be foreseen with even less confidence. Moreover, since profound changes take place in the glands of internal secretion at adolescence, the effects of drastic treatment of the thyroid gland before this period upon health, character, and temperament cannot be gauged. These patients require to be under careful observation for many years, and such measures as ligation of arteries and treatment by X rays have proved of value in guiding them to adult life and health.

Pregnancy.—During pregnancy the disease usually improves, but there is not infrequently a relapse in the puerperium. A relapse is usual if the pregnancy is terminated artificially, and may then be severe. It is better to carry the pregnancy through to term. If the severity of the toxic goitre is endangering the life of the mother, partial thyroidectomy should be performed and the pregnancy allowed to continue.

SUMMARY

Toxic goitre is usually a chronic disease that may endanger life, and seriously lowers efficiency. The danger to life can be removed by diminishing the amount of functioning thyroid gland tissue by means of surgical operation or by irradiation. The most efficient method of doing this at present is by surgical operation. This operation may be dangerous to life, and the mortality is negligible only in the hands of surgeons especially skilled and experienced in operations on the thyroid gland.

Efficiency is frequently restored by treatment, but some slight disability commonly persists. Patients with a mild degree of persisting hyperthyroidism are more happy and efficient than those with hypothyroidism.

The result of treatment directed to the thyroid disturbance will depend on the degree to which the thyroid disturbance accounts for the disability of the patient; toxic goitre frequently arises in the course of chronic ill-health and is but one factor in the disability.

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SPECIAL ARTICLES

MINOR EPIDEMICS OF "INFLUENZA"

(EPIDEMIC CATARRH)

A CLINICAL STUDY OF NINE SEASONS, 1924–33

BY G. M. WAUCHOPE, M.D., M.R.C.P. Lond.

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IT has been said that "no one has yet succeeded in achieving either a satisfactory definition of what is meant by influenza, or a description, far less a regulation, of the usage of the word." [1] Epidemiologists are not agreed upon which of the prevailing illnesses of the past were influenza; purists decline to accept any epidemic unless a recognised causative organism (such as Pfeiffer's bacillus) is isolated; clinicians consider only the great pandemics as the true disease. The general practitioner, however, calls all the catarrhal fevers with which he has to deal in the winter months "influenza."

There are four criteria by which this "influenza" or epidemic catarrh is distinguished.

(1) The illness is acute and catarrhal, affecting the mucous membranes of the respiratory tract and less frequently of the digestive tract.

(2) There are pronounced symptoms but the physical signs are negligible.

(3) There is almost always a sudden rise of temperature. Apyrexial cases do occur but are rare and are not diagnosed as influenza unless they are associated with ordinary febrile cases.[2]

(4) Similar symptoms are shown by a large number of people.

These conditions are fulfilled by the minor epidemics or "prevalences" which are seen almost annually. They have been described in closed communities such as schools and ships by Dukes, Simey, and Dudley, whose results were summarised by Glover in 1932 from the epidemiological aspect.[3] General practice affords an opportunity to study them clinically among the people at large, and it is remarkable to find that although the circumstances of the patients vary widely yet each season's illness has its own individual peculiarities.

Dudley noted that in one epidemic, batches of patients from the same ship presented the same clinical picture, which differed from that in other ships, and that the boys of Greenwich School had the same type of epidemic in four different years although among the population outside there was pleomorphism.[4] In this series, however, the characteristic features seemed to follow the year.

The Nine Epidemics

Nine winters are reviewed, the last being that of 1932–33; the winter of 1933–34 is not included because the cases of feverish catarrh were so few and so scattered that a diagnosis of "influenza" was not made.

The practice in which the 584 cases occurred is in a large seaside town and the majority of the patients were women and children; all ages up to 80 are included but a large proportion (30·4 per cent.) were children under 14 years of age.

INCIDENCE

The incidence of the illness for each winter has been set out in Charts 1–9. They give a rough* idea of the relative proportions of the epidemics and from them certain broad generalisations can be made.

(1) There were three types of chart: the first with a sharp peak, the second with a broad irregular mountain, and the third with a low plateau. In the years with the first two types of chart the number of cases was about the same from year to year, averaging 86, but in the plateau years there were only about a quarter that number (average 22).

The sharp increase in the cases to a maximum and the slower fall is characteristic of epidemic influenza,[5] and in the years with this type of chart there were extensive epidemics in Europe and North America as recorded by D. and R. Thomson.[5] The more gradual increase extended over several weeks and giving rise to charts of the second type occurred locally in milder epidemics, but in these years also there were widespread epidemics except in 1931–32 when the local chart shows the least "peak" of any. On the other hand, in the years with the local "plateau"-shaped chart there was no recorded influenza in Europe or America and the illness of these years might more properly be called "sporadic catarrh"; they have been included because individual cases presented symptoms and evolution similar to the "influenza" of the other epidemics, and even included cases without respiratory catarrh.

(2) In each of the years under review there was a small outcrop of cases in the autumn, then a clear month, generally November, but on three occasions December or January, followed by a great increase in the number of cases between the end of January and the end of February. One week often accounted for a high peak of incidence.

(3) A third point which emerges from the charts is the similarity of the time distribution in each succeeding year. September and May were the limits, and the peak, when there was one, fell within the four weeks between the end of the third week in January and the end of the third week in February.

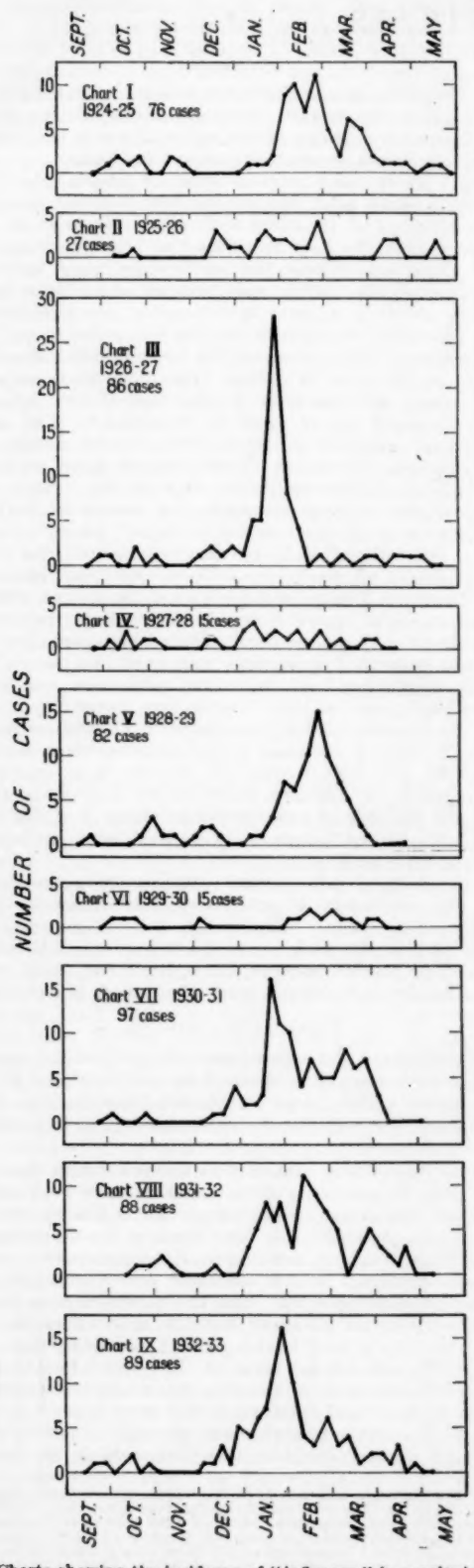
CLINICAL DESCRIPTION

Analysis of the notes taken at the bedside reveals that there were three distinct *types of the illness* which occurred either alone or in combination one with another: (*a*) respiratory, (*b*) alimentary, and (*c*) neuromuscular.

(*a*) *Respiratory catarrh* was the prevailing disorder in over 80 per cent. of the cases in each year under review, the average being 88 per cent.† The symptoms in uncomplicated cases were those of a severe cold in the head, sneezing, suffused eyes, and incessant mucoid nasal discharge which reddened and excoriated the nostrils and upper lip. The throat was sore in about 20 per cent. of all cases, but the most characteristic feature was a hard barking cough persisting day and night in over 50 per cent. of the cases. Paroxysmal sneezing occurred in the epidemics where nasal catarrh was marked, and epistaxis in the same type of illness. Injection of the pharynx was the only objective sign except for occasional scattered rhonchi in the lungs.

* For instance, Chart 3, 1926–27, shows an artificially sudden fall due to the illness of both partners on the same day (Feb. 5th); cases were transferred and notes lost. The growth of the practice affords another fallacy so that the 89 cases of 1932–33 are not nearly so high a proportion of the cases seen during the year as the 86 cases of 1926–27.

† This comprises all cases with respiratory symptoms, whether alone or in association with the other types.



Charts showing the incidence of "influenza" in a private practice during nine seasons.

The cough was probably due to extension of the pharyngitis to the trachea. There were 68 cases without respiratory catarrh and these were divided almost equally between the alimentary (31, or 5·5 per cent. of the whole) and the neuromuscular (37, or 6·5 per cent.) types of the illness.

(*b*) In the *alimentary type* the symptoms were diarrhœa and vomiting, intense nausea, flatulence and epigastric discomfort, and, in a few cases, severe abdominal pain (9 out of 31 pure alimentary cases). There was sometimes a close imitation of an acute surgical condition, but it did not give rise to real difficulty in diagnosis since the cases occurred in an epidemic.

98 cases, or 17 per cent. of the total, had alimentary symptoms; of these, 17 combined respiratory and alimentary catarrh, and thus the series differed from Marriott's experience in 1933 at the Middlesex Hospital, where each group was quite distinct.[6]

(*c*) The *neuromuscular* group of symptoms likewise sometimes constituted the whole picture, but in other cases were combined with the respiratory or alimentary type of illness. They were headaches, sometimes described as a "tight band," pains in the limbs, back and bones—especially of the face‡ or a bruised feeling, all over—and were often associated with prostration. In combination, this group of symptoms was noted in 152 cases, or 26·6 per cent. of the whole. The "pure" cases were slightly more frequent than the pure alimentary type, although none occurred in two of the years; but two other years, 1924–25 and 1926–27, accounted for more than half the total. They were years of severe illness and the neuromuscular cases were the worst.

Certain symptoms were noted occasionally in all the groups: for instance, shivering in 38 cases, chiefly at the beginning of the illness. Perspiration frequently drenched the patient on the third or fourth day. Giddiness or fainting made a dramatic onset in isolated cases in four of the epidemics, but in 1930–31 was commoner (7 cases). It was not necessarily a bad prognostic sign. Prostration occurred only in the severe epidemics and in severe cases; it will be further discussed in this context.

Fever was usually highest at the onset, or within at most 48 hours, and in uncomplicated cases reached normal on the fourth to the seventh day, the fifth day being the most usual. The maximum observed temperature has been analysed in 499 cases, but in some of these the highest points have probably escaped notice. In 300 (60 per cent.) the highest point was under 101° F., in 199 (32·5 per cent.) between 101° F. and 103° F., and in 37 (7·5 per cent.) over 103° F. In 4 cases under constant observation the temperature was subnormal throughout.

The height of the fever seemed to have no relation to the severity of the illness, but rather to the prevalent type; so that although it was highest in 1926–27 the most severe epidemic, the next highest was in 1927–28, one of the mildest, but having sore-throat as the presenting symptom.

COMPLICATIONS

Complications supervened in 23·2 per cent. of the cases. The most common were bronchitis, pneumonia, otitis media, and myocardial toxæmia.

Bronchitis occurred in every epidemic (64 cases, 10·9 per cent.), and was no doubt due to an extension of the respiratory catarrh from the pharynx and

‡ Pain "in the bones" of the face, nose, and forehead was said to be frequent and almost pathognomonic in the epidemic of 1782. (Min. of Health. Rep. on Public Health and Med. Subjects, No. 4, p. vii.)

trachea to the bronchial tubes. It increased the length and severity of the illness but never endangered life, and at the mildest was recognised only by the presence of scattered rhonchi for a day or two and a "loosening" of the cough.

Pneumonia supervened as a new and serious complication. It appeared in three forms: First, ordinary lobar pneumonia which attacked three young people and one old woman on the fifth to the seventh day after the onset of "influenza." The left base was the site in three, the right in one, and the temperature fell by crisis on or about the seventh day. Two of the cases occurred in one of the mild epidemics, 1925–26. Secondly, broncho-pneumonia followed bronchitis in one case, with recovery; this and the third case of pneumonia were in a severe year—1932–33. Thirdly, toxic influenzal pneumonia occurred in three cases in 1926–27. The picture presented was quite different from that of the lobar pneumonia seen in other years, the physical signs in the lung being a very small part of the whole. Cyanosis was marked and prostration extreme; the pulse was running and feeble, and respiration weak. Two of the patients died, one on the eleventh day of the illness and seventh day of the pneumonia. The other, an old lady who had had repeated colds during the winter, was overwhelmed from the start and died on the fifth day; consolidation of the lung was appreciable on the third day.

The patient who recovered became cyanosed, with rapid pulse and respiration on the fourth day of the illness, the temperature being 102° F. Dullness at the bases, first the right and then the left, was not detected until the seventh day when the temperature had fallen to 99° F. The illness ran the usual course of influenzal pneumonia. The consolidation at the bases did not clear for five weeks and was associated with irregular low pyrexia, rapid pulse, great prostration, and pleuritic pains. Twenty million staphylococci and Friedländer's bacilli in a vaccine made from a sputum of the first patient who died were given on the eighth day with remarkable clinical improvement, and repeated in increasing doses on the eleventh and fourteenth days. The patient was convalescent eight weeks from the onset.

Otitis media was the most common complication after bronchitis (35 cases, 6 per cent.). It was observed in six out of the nine seasons but varied in severity; for instance, in one year (1928–29) suppuration occurred in all the cases, while in 1930–31 all subsided without paracentesis or spontaneous perforation. It took place in cases with respiratory catarrh on the third to the eighth day of the illness. One adult patient, in 1932–33, developed mastoiditis. All except three of the patients were children.

Myocardial weakness only appeared in five of the epidemics, affecting 14 patients; it generally developed after the first week, or well into convalescence, and presented a characteristic clinical picture. The patients lay limp in bed, flat on their backs, and were unwilling to lift a hand or raise their heads. Mental and emotional depression was extreme, and they often feared they would die. They were pale but not cyanosed; the skin was clammy, the tongue furred, and the eyes closed. The heart was generally dilated, the apex being about half an inch outside the mid-clavicular line, the right border just beyond the right edge of the sternum. The sounds were regular, but "woolly" or "tic-tac" and generally rapid, but in two cases there was bradycardia. The systolic blood pressure was very low (90–104 mm. Hg) and the pulse pressure small. The length of time taken to recover was in direct ratio to the age of the patient and ranged from ten months in a woman of 56 to four weeks in a boy of 12.

The following unusual complications were observed:

Cervical adenitis ..	2 cases in children.
Pleurisy	2 cases.
Nephritis	1 case in a child.
Phlebitis	1 case.
Sciatica	1 case.
Jaundice	1 case.
Hæmoptysis	1 case with no physical signs or sequelæ.
Fibrosis of roots of lung	1 case.

The last of these cases deserves brief notice.

In February, 1932, the patient, a woman of 40, suffered during the second and third weeks of "influenza" from attacks of breathlessness lasting about half an hour. Moderate and variable pyrexia persisted for two months and crepitations were heard constantly at the roots of the lungs. Radiograms taken seven weeks from the onset showed a condition which appeared to be fibrosis. The sputum was tested repeatedly for tubercle bacilli with negative results and the patient made a complete recovery after having been laid up for three months; she had influenza the next year with no complications and was back at work in a fortnight.

LENGTH OF ILLNESS AND NUMBER OF ATTACKS

The duration of disability, based on the length of time the patients were visited, is a rough measure of the severity of the illness. Obviously, some patients cast off medical attention at an earlier stage than others, while factors other than the severity of the illness influenced the time taken to recover; for instance, necessity drove some back to work too early, whereas valetudinarianism prolonged convalescence in others. But in the main the years in which the illness lasted longest were the years in which it was most severe. Of the survivors, 42 per cent. were well in less than one week; 33 per cent. in from one to two weeks; 14 per cent. took between two and four weeks; 8 per cent. one to three months; and 2 per cent. (12 patients) took over three months.

Relapse or recurrence of the illness within twenty-one days of the onset was seen in four cases, on the 7th, 9th, 13th, and 20th days respectively, and in each of them the relapse was worse than the original attack.

Second attacks developed, between one and three months after the first attack, in seven cases; the shortest interval was between Dec. 1st and 25th; the longest Oct. 30th to Feb. 2nd. The patients had all recovered and gone back to their usual life before the second attack; this was always worse than the first, and in six cases was complicated—by otitis media (1), by cardiac debility (3), of which one was further complicated by cardiac infarction, by bronchitis (1), or by relapse during the second attack (1).

Multiple attacks with intervals of eight months or more were incurred by 63 patients; the largest number for one patient was seven in the nine seasons.

(To be concluded)

SHEFFIELD ROYAL INFIRMARY.—A new operation theatre block to be named the Silver Jubilee Block is to be erected this year at the Sheffield Infirmary. In 1934 for the first time for many years the income of the infirmary exceeded its expenditure, and this money is being used to build the new block.

NEW HOSPITAL FOR BANBURY.—It is proposed to build a new hospital for Banbury and its district as the improvement of medical services, the increased readiness of patients to come into hospital, and the growth of the workpeople's hospital association has overtaxed the accommodation of the present institution.

THE HUGHLINGS JACKSON CENTENARY

By S. A. Kinnier Wilson, M.D., D.Sc., F.R.C.P.

Hughlings Jackson was born 100 years ago, on April 4th, 1835, in a small Yorkshire village. To-day in various parts of the globe neurological societies are celebrating the centenary of his birth, while at the end of July the Second International Neurological Congress will meet in London; and this year and place have been chosen precisely to do honour to that great man. Last week the Section of Neurology of the Royal Society of Medicine held a commemorative dinner to celebrate the same event. Earlier in this year Sir Farquhar Buzzard devoted his Schorstein lecture largely to personal reminiscences of Jackson. The land of his birth, therefore, is not behindhand in seeking to show its gratitude for what the science of neurology owes him.

It is naturally difficult to convey to a younger generation some notion of what Jackson was like in his prime, for his contemporaries are nearly all gone. He died in 1911—i.e., 24 years ago—and we have to turn to descriptions furnished by others if we wish to know what manner of man he was. Those who knew him when he was old, and beginning to show signs of failing vigour, cannot really consider themselves in a position to do this; they saw him after his best was over, and had little genuine opportunity of judging for themselves in regard to those qualities which had so impressed their seniors. Among his coevals Jackson was undoubtedly held in the highest admiration and respect; he was, as one might say, the neurologists' neurologist (just as Meredith, in his own line, was the novelists' novelist). Tributes paid him during his life, and in notices by one or other of these coevals after his death, bear out this statement fully. The late Sir David Ferrier wrote of "the great master who has passed away, but whose name will for ever remain enshrined in the annals of medical science." When Jackson retired from the active staff of the London Hospital he was presented by colleagues and admirers at home and abroad with his portrait (Calkin) "... in recognition ... of the advances he effected in medical science by his laborious investigations and profound insight into diseases of the nervous system." A valuable comment on his remarkable genius has been provided by the late Sir William Broadbent, who, in the course of delivering the (third) Hughlings Jackson lecture (1903) said: "Hughlings Jackson has given to the world no such monumental treatise on diseases of the nervous system as that of Gowers. We do not owe to him any such superb series of clinical and pathological descriptions and investigations as those which have made the name of Charcot illustrious. He has not engaged in the experimental investigations into the functions of the different parts of the nervous system which ... in the hands of ... Ferrier, Horsley, Schäfer, Sherrington, Mott, and many others have enabled us to understand the mechanism of the brain and cord. He has taken no part in the microscopic unravelling of the ... arrangements of cells and fibres, by means of which the nerve centres exercise their marvellous functions." The lecturer then went on to say: "This makes it all the more extraordinary that, as is the case, we accord to him unanimously the first place among those who have contributed to neurology as a science."

On what, then, are these wonderful contemporary tributes based? Jackson's genius consisted in his power of combining the little and the great, of uniting an unsurpassed faculty of detailed clinical observation with a philosophic breadth of thought and with the use of a gifted imagination. Thus did it come about that on the one hand his fame was founded on clinical minuteness—for example, in Jacksonian epilepsy and in the syndrome of Hughlings Jackson (unilateral palsy of motor tenth, eleventh, and twelfth)—and, on the other, was established by his marvellous comprehension of the underlying significance of phenomena. As instances of the latter, we may allude to his views on the constitution of the cerebral hemispheres and the existence of motor centres for the limbs, faces, &c., in the Rolandic area; he deduced their forms and functions before subsequent experimenters confirmed them in the higher mammals. His theories on cerebellar function and mode of action were also confirmed in all essentials by later experimental research. In the phenomena of nervous disease Jackson always insisted on the coexistence of positive and negative elements, on distinction between functioning and non-functioning parts; and he applied the principle to the most diverse symptoms, from those of paralysis of an ocular muscle to those of aphasia and insanity. Again, he will always be remembered for his penetrating study of evolution and dissolution in the nervous system; the former is a passage (*a*) from the most to the least organised, (*b*) from the most simple to the most complex, (*c*) from the most automatic to the most voluntary. Dissolution is a process of "taking to pieces," the condition being in every case of it duplex. Loss of the least organised, most complex, and most voluntary implies the retention of the more organised, the less complex, the more automatic. In this illuminating way Jackson laid down sound principles of wide application, which have cast light on symptomatology and proved their worth in discoveries which he could hardly have foreseen. Once more, Jackson was led to the conclusion that "levels" exist in the nervous system; the

lowest represent some limited region of the body; the middle are re-representative; the highest are re-re-representative. With the actual sites and physiological activities of these levels we need not here deal; and it is true that in some ways his views on the subject of "levels" were speculative. But the doctrine is what matters; it is finding to-day more assent and substantiation than ever before.

In these and other ways, then, Hughlings Jackson contributed to the science of neurology foundation stones on which others are building—some, doubtless, who know not whence the understructure is derived. Proof of the abiding value of his work has been forthcoming for years now in the increasing attention paid to his views by scholars abroad. His papers and articles (a selection of the more important of which was published in two volumes in 1931–32) take some reading; as Ferrier remarked with truth, there is much repetition and iteration of the dominant ideas, and his style is frequently obscure, owing to the numerous provisos and qualifications which he constantly introduced to prevent his being misunderstood. For these and other reasons they have to be perused at leisure and not at speed; but they contain a wealth of material which has not even yet been fully gone over. It is only when they are thus examined that the knowledgeable reader has been able to find anticipation of later work—a good instance being Jackson's observation of the phenomena of apraxia 30 years before the late Prof. H. Liepmann produced his studies.

Enough has been said to illustrate the reception given by Jackson's colleagues, friends, and scientific contemporaries to his epoch-marking labours, and to support the claim that little indeed of his work "dates"; his enunciation of cardinal principles and elucidation of nervous modes of action do not depend on any manner of thinking that has become obsolete. No doubt Jackson was a product of his period, and in not a few respects advancing knowledge has left him behind; his innate modesty never led him to say more of his views than that they were theories and speculations and that some day he would be "found out"; but he is honoured to-day by neurology the world over, because of his genius in raising ideas of neural activity to higher planes of thought and in discovering unities amid heterogeneous clinical diversities.

MEDICINE AND THE LAW

Mother's Claim to Child

THE dispute between Mrs. Hinckes and Mrs. MacLean for the custody of the latter's daughter, Jean Crichton (to which brief allusion has already been made [1]), was settled last week when argument in the Court of Appeal had disclosed a position of some legal difficulty. Jean was born in 1923; when three weeks old she was placed with Mrs. Hinckes, the proprietress of a home for babies. Mrs. MacLean, employed as a nursing sister overseas, was unable to make a home for the child; she paid Mrs. Hinckes £65 a year till August, 1930. Then, after a year's lapse owing to her unemployment, she resumed payments at the rate of £45 a year till 1933, when she returned to England for reasons of ill-health. It was clear that the mother made provision for her daughter's maintenance to the extent of her power. It was also clear that Mrs. Hinckes, having grown fond of the child, was willing to keep her without payment, and indeed wanted to keep her altogether. In 1933, when Jean spent part of her holidays with her mother, Mrs. Hinckes applied to the Steyning magistrates for an adoption order, but the mother refused her consent. This refusal was fatal to the application in view of Section 2 (3) of the Adoption of Children Act, unless the magistrates thought that the mother had deserted the child or persistently refused to contribute to its support or was a person whose consent "in the opinion of the court and in all the circumstances of the case" ought to be dispensed with. Mrs. MacLean wanted the return of Jean and, being now able to make a home for her, took out a writ of *habeas corpus*. As is well known, this procedure is one of the historic safeguards of English freedom. The courts thereby inquire the causes for which any of the King's subjects are deprived of their liberty; it is the pre-eminent remedy for illegal confinement. Its use in the present connexion was a little uncommon, and Mr. Justice Atkinson, before whom the case came, seems in part to have treated the proceedings rather as an application under the Adoption of Children Act than as a question of the grant or refusal of an order of *habeas corpus*. He made a conditional direction for which there seems no precedent. He saw Jean and the two claimants privately, and he learnt that Mrs. Hinckes was willing to apply at present for an interim adoption order only; she was willing to keep Jean for two years at her own expense and would allow Mrs. MacLean to have the child at holiday times. He found that Jean was afraid of, and had no affection for, her mother. He therefore refused to order the return of Jean to her mother forthwith but made a direction substantially in the terms of the interim adoption order for which Mrs. Hinckes was asking. Mrs. MacLean appealed to the Divisional Court, where the two judges took the view of "the man in the street," that a mother ought not lightly to be deprived of her child and that this particular mother could not be a bad guardian for her daughter if the court below had been willing to let her have the child for the holidays. Mrs. Hinckes in turn appealed to the Court of Appeal on the ground that Mr. Justice Atkinson had seen the girl and had consulted her wishes, whereas the Divisional Court had declined to see her and therefore had no material whereon to overrule him. It was argued for Mrs. Hinckes that Jean would have a better home if she stayed where she had been brought up, and that there was no evidence of genuine affection on the part of the mother. At the end of the day Lord Justice Slesser drew attention to the unprecedented and possibly irregular action of Mr. Justice Atkinson in attaching conditions to an order made on a *habeas corpus* application. Next morning the court announced that the case had been wisely settled on terms which were not disclosed. Thus we have no judicial guidance as to the mother's legal right to her child, or as to her right to have an opportunity of winning its affection before custody is finally transferred to someone else.

[1] THE LANCET, March 23rd, p. 690.

Fallibility of Identification

The fallibility of human testimony in identifying dead or injured bodies is a phenomenon of which coroners and police officers are well aware. There was a fresh instance at a Bath hospital last week. A motor-cyclist was thrown from his machine and fell under a two-ton lorry, sustaining severe injuries to the head. There was no immediate means of identification when he was brought to the hospital, but, according to the local newspaper, one of the ambulance party

suggested that the patient was a Mr. M., vice-chairman of the Bath City Football Club. A porter at the hospital, who knew Mr. M., confirmed the suggestion. A fellow-director of the Football Club happened to be at the hospital and had no hesitation in identifying the injured man as his colleague Mr. M. Someone having communicated with Mr. M.'s household, his father went to the hospital and recognised the patient as his son. It was not till Mr. M.'s wife arrived that the mistake was discovered. She at once declared that the man was not her husband. Later in the day the real Mr. M. came home safe and sound and the true identity of the motor-cyclist was established. Such is the force of suggestion; one person's statement persuades others. If St. George is seen upon the walls of Jerusalem by hundreds of Crusaders, there must be someone who sees him first before the crowd accepts the miracle.

It must often happen that the law is too easily satisfied with identification by witnesses who may be mistaken. When Adolf Beck was first sentenced some 40 years ago, 15 out of 17 women identified him as the man who had swindled them. When he was convicted again in 1904, 19 women identified him. But when it appeared that a judicial blunder had been committed and that the real criminal was a man named Thomas, who had been arrested on similar charges of swindling, witnesses who had identified Beck now agreed that Thomas was the man. Successful defenders like Serjeant Ballantine and Sir E. Marshall Hall have secured acquittals by producing in court somebody who closely resembled the accused man then undergoing trial; the chief witnesses for the prosecution could not distinguish one man from the other and conviction was impossible. The classical illustration of the fallibility of identification was the Tichborne litigation of the eighteen seventies. Roger Tichborne, the missing heir, had been slight and delicate, with a long narrow face and thin straight dark hair. Arthur Orton, the claimant, weighed 24 stone and had a large round face crowned with a mop of fair and rather wavy hair. A hundred witnesses recognised Orton as Roger Tichborne. The latter's mother was the most persistent in believing the impostor to be her son. Alone of her family, she had refused to believe that Roger was drowned when the ship in which he travelled foundered with all hands. She advertised for news of him, and, when the claimant came forward, she had made up her mind before she saw a line of his handwriting or heard a fact about his history. She recognised him as soon as she saw him first in a hotel bedroom on a dark afternoon in winter, and nothing could shake her faith afterwards. With Lady Tichborne the wish was father to the thought, but cases where all motive or interest is absent are not free from mistake. However fairly an identification parade is conducted at a police station the results must contain an element of uncertainty. Experiments have shown that trained observers, dispassionately doing their best, can err like other human beings.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE FRENCH MEDICAL PRESS

THE recent annual dinner of the Association de la Presse Médicale Française serves to remind the rest of the medical world of the existence of this very live body. Sir Dawson Williams used to call medical journalism the smallest specialty in medicine but the Association is none the less powerful in its own way, and an effective guardian of its members' interests. It began quite modestly half a century ago with the object, convivial rather than trade-unional, of bringing together every quarter the directors and editors of the medical journals. On these occasions solutions were found to problems whose discussion in the press might have been less amicable, since it is easier to agree over a glass of wine than over the printed page. The annual subscriptions covered the cost of the meals eaten, and provincial colleagues were invited to fill gaps left at the table by absentee members. After the late war, however, difficulties arose requiring more than conviviality, and from being an informal dining and debating society the Association has had to convert itself into a *syndicat*, a sort of trade-union, fighting for the interests of its members. With the devaluation of the franc and the rise in the cost of production, the medical journals have had to charge more both to subscribers and advertisers, though considerable economies have been effected by centralised purchase of raw materials and other means. A united front has also had to be shown to the collectors of taxes. The reluctant admission that the scientific and brilliant editor does not necessarily possess all the qualifications required of a successful business manager has led to a certain readjustment between the editorial and managerial departments, to the benefit of both; and here, again, the Association has oiled the wheels of progress. At its last annual meeting it appointed a technical commission to study the industrial and commercial problems in which the journals are interested, and to put forward proposals for their solution.

The capital which French medical publications represent has become considerable. As a medium of publicity they receive substantial sums, and the advertisers have begun to collaborate with each other, the better to bargain with the managers of the medical journals. In other words, there are now two fairly well-organised camps whose mutual hostility is tempered by the reflexion that the one could hardly live without the other.

DENTISTS IN CONGRESS

A congress devoted to dentistry and allied subjects has just been held in Paris, and no visitor could have attended it without being impressed with the variety and importance of modern dental activities. Many of the papers indeed might be described as "paradontological"; for example, the subjects included the treatment of tuberculous glands in the neck, the treatment of cancer of the tonsil, and actinomycosis, also dealt with in a special paper. Pyorrhœa aroused keen discussion, and a book on it lately produced by Dr. Roy, of the Ecole Dentaire de Paris, received well-deserved attention.

FORENSIC SEQUEL TO AN INJECTION OF CAMPHOR

A too legally minded engineer, Michel Hertz, has lately demonstrated the unwisdom of suing your doctor for damages just because something goes wrong. Having undergone resection of the nasal septum, he was three days later given a subaponeurotic injection of oil of camphor into the right thigh. A diffuse phlegmon ensued. The surgeon whose nurse had given the injection was accordingly sued for the modest sum of 100,000 francs. The first medical referee reported in favour of the claimant, arriving at his verdict by what he admitted was a process of exclusion. It seemed to him that, in the absence of other plausible explanations for the genesis of the phlegmon, it behoved him to assume that the nurse

had not observed the necessary antiseptic precautions. The surgeon claimed and was allowed another medical opinion, which was given by three experts who, in their lengthy report, came unanimously to the conclusion that the mishap could not be traced to any fault of cleanliness. Although the phlegmon had developed at the site of the injection and was, like it, subaponeurotic, and although there was no question as to the sterility of the injected fluid, it was impossible to exclude the hypothesis of a phlegmon forming as a more or less innocent fixation abscess. In other words, camphor may localise germs which have been circulating in the blood, or may even provoke a sterile abscess. With this possibility always present, it was argued for the defence that the defendant could not be held responsible for the phlegmon in this case, the less so as no direct evidence had been produced as to the non-observance of the proper ritual of a sterile injection. Although the claimant lost his case, being awarded no damages and having to pay the costs of the action, it is to be feared that this legal decision will do little to stem the tide of compensation-thirsty litigants whose numbers are growing yearly.

FUSION OF FRENCH TUBERCULOSIS JOURNALS

For several years the Comité National de Défense contre la Tuberculose has published an excellent journal, the *Revue de Phtisiologie*. Another journal, also excellent, the *Revue de la Tuberculose* has been published by the Société d'Etudes Scientifiques sur la Tuberculose. Their individual merits could not, however, hide the fact that they were overlapping each other, and the fusion of the two is now an accomplished fact. The new monthly journal appears with the title of *Revue de la Tuberculose*, and represents both associations.

A MEMORIAL TO ÉMILE ROUX

Under the patronage of the President of the Republic and many distinguished Frenchmen in all the walks of life, a national subscription has been opened for the creation of a Roux Foundation whose funds are to be devoted to providing scholarships for young students with an aptitude for the biological sciences. It is hoped that the financial resources obtained for this object will enable the Pasteur Institute to continue to promote that research which Roux valued so highly, and which of late has been greatly hampered by the financial losses which the Institute has suffered.

POLAND

(FROM OUR OWN CORRESPONDENT)

RESPONSIBILITY OF A HOSPITAL FOR DAMAGES

In insisting on a new trial of a claim for damages against a hospital, despite the fact that it had been dismissed by two other courts, the Supreme Court has created an important precedent. The plaintiff, who had previously been sound and healthy, received dental treatment at a clinic in 1933. Later an ulcer appeared near the affected tooth and she was found to be suffering from syphilis. It is alleged that the instruments used by the dentist had not been properly cleaned, and that the infection had entered the system by a small lesion near the tooth. The patient claimed heavy damages; she held that she should be compensated, not only for cost of treatment and expenses incidental to her illness, but also for her diminished chances of marriage. The first two courts that heard the case dismissed it on the grounds that a hospital may not interfere with the work of its surgeons, and therefore cannot be held responsible for their mistakes. The Supreme Court, however, distinguished between mistakes due to lack of skill or an error of judgment, and mistakes due to gross negligence which it considered the organisation of the hospital should be able to prevent, and it ordered a fresh trial.

IRELAND

(FROM OUR OWN CORRESPONDENT)

PUBLIC HEALTH IN THE FREE STATE

In introducing his estimate for local government and public health to the Dáil last week, the Minister, Mr. Sean T. O'Kelly, was able to give an encouraging report as to the public health of the country during the year. He stated that there was a distinct improvement in the incidence and death-rate from the principal epidemic diseases. A total of 667 deaths were recorded as due to influenza, as against 1791 in the previous year, and an average of 1438 for five years. The infant mortality had fallen from 65 to 63 per 1000 from the previous year, the average for five years being 69. The maternal mortality-rate was the same as in the previous year—4·4 per 1000 births—but the mortality from puerperal sepsis had increased from 80 deaths to 92. There was a decline in both the incidence of and the mortality from diphtheria. The Minister thought that this improvement might be largely attributed to the immunisation campaign which was being pursued all over the country. Enteric fever had shown a rise from 440 cases in 1933 to 590 in 1934, and the number of deaths had increased by 14.

Medical officers of health had been appointed in 22 counties; 4 counties were proceeding to make appointments; and steps were being taken to compel the remaining county to make an appointment. Schemes for the treatment of tuberculosis were in operation in every area except the county of Longford, and a scheme would soon come into force in that county. There had been no addition during the year to the districts in which school medical inspection schemes were in operation—namely, 4 county boroughs and 18 counties. The appointment of more county medical officers of health would make possible an extension of school schemes.

THE MILK BILL

The Milk and Dairies Bill, 1934, passed its final stages in the Dáil last week, and is now before the Senate. The Bill makes provision for the registration of all dairies and dairymen engaged in the sale of milk, the registration to be in the hands of the local health authorities. The local authority is given the right of entry and inspection. In certain conditions the medical officer of the local authority is given the power to examine the person of workers in dairies suspected of being the source of infection in milk. The Minister is authorised to make regulations prescribing the designations under which milk may be sold or offered for sale, and to issue licences for the use of such designations. It is prohibited to use such a designation without a licence. Strict provisions are intended to prevent the sale of infected milk and the sale of milk from diseased animals. Adequate powers are given to the local authority for the sampling and bacteriological examination of milk offered for sale.

It may be said that the Bill furnishes a not unsatisfactory code of law for the control of milk in the hands

of an energetic local authority. Its whole success in practice will depend on vigour in administration. Unfortunately a public health system is of such recent birth in Ireland that the people of the country and the members of the local authorities are alike unaccustomed to active public health administration. Most of the county medical officers, themselves only recently appointed, have their hands full already with other duties, and unless given adequate assistance can hardly spare much time to the administration of the present measure. The interest of the local authorities will be considerably chilled by the fact that the entire expense of working the Bill is thrown on their shoulders. The Government would have got much more ready coöperation from the local authorities if the expense of administration had been divided between local and central funds. In some minor matters the Bill is capable of amendment, and it is hoped that the Senate may succeed in getting some improvements made.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

MENTAL DISEASE IN SCOTLAND.

THE steady accumulation of certified patients in mental institutions continues to present a serious problem. According to the General Board of Control for Scotland, whose 1934 report has now been issued, there were in Scotland on Jan. 1st. of this year 19,685 insane persons of whom the Board had official cognisance. This represents an increase of 147 compared with the previous year. All the asylums have exceeded the number of patients which can be accommodated with safety from the point of view of health and administration, and many have become gravely overcrowded. The system of boarding-out in Scotland has been attended with conspicuous success, and the Board advise that the use of this method should be accelerated. This would help to relieve congestion, but extension of asylum accommodation is also urgently required. The death-rate of patients in mental hospitals, per cent. of the average number resident for the year 1934, was 6·9.

There is a steady lessening of public prejudice against mental hospitals, and with this change the difficulty of accommodation is bound to become more and more acute. There is, for example, an increasing tendency to send elderly patients with cerebral degeneration, due to vascular disease or tumour, to mental hospitals, owing to the difficulty of handling such cases at home or in a general hospital. General hospitals are intolerant of patients with mental confusion, aphasia and incontinence, but it sometimes seems to be a little cruel to certify elderly patients suffering from organic disease of the brain such as cerebral tumour and cerebral thrombosis.

THE LATE COLONEL THOM

The sudden death of the superintendent of Edinburgh Royal Infirmary will be felt keenly by the managers and by all who work in the hospital. Colonel Thom had a remarkable gift for organisation and for seeing that everything was done properly. He spared himself no effort to improve the efficiency of the Infirmary, and by his enthusiasm, tact, and kindliness, not only enlisted the whole-hearted coöperation of the staff, but at the same time won their deep affection and regard. It is no easy matter to superintend a voluntary hospital of 1000 beds, and it is still harder to appreciate the traditions and peculiarities which such a hospital possesses. Colonel Thom, however, very soon grasped the situation with such ability that both the managers and members of the staff came to count on his advice when difficulties arose. His charming personality made it a pleasure to discuss difficulties with him, and his death gives us at the Infirmary a feeling of personal loss; the R.I.E. will not be the same without "the Colonel."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 30TH, 1935

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2519; diphtheria, 1372; enteric fever, 16; acute pneumonia (primary or influenzal), 1799; puerperal fever, 41; puerperal pyrexia, 145; cerebro-spinal fever, 33; acute poliomyelitis, 4; encephalitis lethargica, 6; continued fever, 1 (Ebbw Vale); dysentery, 7; ophthalmia neonatorum, 104. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on April 6th was 3885, which included: Scarlet fever, 1144; diphtheria, 1716; measles, 22; whooping-cough, 348; puerperal fever, 23 mothers (plus 10 babies); encephalitis lethargica, 270; poliomyelitis, 2. At St. Margaret's Hospital there were 19 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London there was no death from small-pox, 3 (1) from enteric fever, 20 (0) from measles, 6 (0) from scarlet fever, 27 (5) from whooping-cough, 47 (6) from diphtheria, 48 (14) from diarrhœa and enteritis under two years, and 181 (26) from influenza. The figures in parentheses are those for London itself.

The peak of influenzal deaths has probably been reached, the number of reported deaths for the last few weeks, working backwards, being 181, 175, 145, 139, 83, 91, 83, 91, 71, 56. This week these deaths were reported from 69 great towns, Liverpool reporting 12, Manchester and Birmingham each 11, Sheffield and Sunderland each 7, Stoke-on-Trent 6, Oldham and Bristol each 4. (During the same week Glasgow reported 33 deaths, Edinburgh 8.) Wolverhampton reported 3 fatal cases of measles, no other town more than 2. Three deaths from diphtheria occurred at Bradford, at Leeds, and at Newcastle-upon-Tyne.

The number of stillbirths notified during the week was 288 (corresponding to a rate of 43 per 1000 total births), including 48 in London.

NEW HOSPITAL AT EAST GRINSTEAD.—The market town of East Grinstead, in Sussex, with its rapidly growing community, has long been confronted with the need of a larger hospital. In 1929 a scheme was brought before the townspeople, but little support for it was forthcoming; it was thought that the time was not ripe for an outlay of £25,000, the figure then mentioned. Rapid building developments in the town and the surrounding district quickly increased the demand for beds at the existing Queen Victoria Hospital, with the result that the 12 beds, 3 cots, and 1 paying ward were constantly occupied, and cases had to be sent to London, Redhill, Tunbridge Wells, and Haywards Heath. This created an outcry, and in 1931 a public meeting of 400 residents voted unanimously for a new hospital. The building, whose foundation-stone was laid by Lord Horder on April 6th, will cost £27,000, and of this sum only £4500 remains to be raised. In a short speech Lord Horder spoke of the sound principle of decentralisation of hospital work. The dissemination of medical and surgical advances was now so rapid, he said, that they knew nearly as much in East Grinstead as in London. Moreover, there were advantages in treating and nursing patients in the country rather than in London, and he could not call to mind a cottage hospital so well situated and so admirably conceived as that at East Grinstead. Lord Horder went on to say that he was still an advocate of the voluntary hospital system, and he hoped that any change towards another system of administration would be a gradual one.

PUBLIC HEALTH

Hospital Services in Scotland

IN contrast to the position in England and Wales, where the power of local authorities, including county councils, to provide hospital accommodation of any kind is absolute under the Public Health and Local Government Acts, in Scotland it is limited to the councils of counties and large towns (over 20,000 in population) and is contingent upon approval by the Scottish Department of Health of considered schemes for the reorganisation of the hospital facilities of these councils. South of the Border, it is true, a council proposing to make new hospital provision must consult a body representative of the voluntary hospitals in the area, but there is nothing to compel it to adopt the latter's suggestions. If it intends to borrow for the purpose, as is usually the case, the Minister's sanction must be obtained so that, indirectly, the Ministry of Health is able to signify its approval or disapproval of the scheme. In Scotland, however, the central department's duty to review the whole of the institutional provision in an area, whether under council or voluntary management, before signifying approval of a scheme, is obligatory under Section 27 of the Local Government (Scotland) Act, 1929. The Scottish department must, therefore, review all the hospital accommodation available for the people of an area when any proposal for increasing or reorganising it is made, and it must be satisfied that the authority has taken reasonable steps to seek and continue to secure full coöperation with every voluntary hospital, university, or medical school within *or serving* the area.

FIVE REGIONAL CENTRES

It will be seen that this duty really places the department in a position to exercise the initiative in hospital reorganisation and it has set out a very definite policy as to how the Act of 1929 should be made effective. The great teaching centres of Edinburgh, Glasgow, Aberdeen, and Dundee have all along served a much wider area than these towns through their associated hospitals, and it is proposed that these should form regional centres, a fifth region, comprising a large part of the Highlands, being centred on Inverness. The department has set its face against the multiplication of small and inefficient units. Its aim is set out thus [1]:—

(1) to raise the standard of institutional treatment of the sick poor to the accepted general hospital standard;

(2) to secure, by coöperation—in any of its numerous forms—between local authorities of adjacent areas the maximum development of a few chosen institutions rather than the uncoördinated extension or indefinite continuance of a large number of small units, more or less duplicating one another's services, equipment, and staffs;

(3) to foster coöperation between the statutory and the voluntary hospital authorities so that together they may make a full contribution to the treatment of the sick, to medical teaching and research, and collaborate in the solution of those problems of hospital administration (e.g., allocation of patients, scales of charges and payments of staffs) in which their interests are, or must ultimately be, inextricably intertwined.

Even before the transfer of poor-law functions, a measure of coöperation between districts had been attained, some use had been made of poor-law hospitals for medical education, and the city and county councils of Aberdeen had gone far in attaining a common hospital policy, in collaboration with the voluntary hospitals serving their areas. Obviously it will take a long time to make the proposed regional system really effective. Practitioners in remote parts will incline to send their difficult cases to the teaching hospitals where they were trained, in preference to a centre which, perhaps, they have never seen, and with the staff of which they have had no contact. At first sight it would appear that the inclusion of Argyll, parts of which are close to and within easy access of Glasgow, in a region centred upon Inverness is irrational, but, no doubt, the department is faced with the need for increasing the population served at this centre in the interests of efficiency, and it may be that it expects difficulties of distance and transport to be overcome by the development of the air ambulance service already established by Argyll county council and other Highland authorities.

COUNCIL OR POOR LAW

As in England and Wales, the council hospitals exceed the voluntary hospitals in number and accommodation. There are 243 council hospitals, with 18,670 beds, as against 206 voluntary hospitals, with 12,575 beds. When, however, special hospitals of the kind which serve those purposes which have long been the province of statutory public health administration are deducted (e.g., hospitals for fevers, tuberculosis, maternity, and children's diseases) there are left, under local authorities, 59 poor-law general hospitals, with 5570 beds (of which 55, with 3270 beds, are mixed institutions, in Scotland called poorhouses), and 5 general hospitals, transferred away from the Poor Law, containing 1580 beds. The total number of general hospital beds under local authorities is therefore 7150, compared with about 7000 voluntary beds allocated to general surgical and medical work. The department draws attention to the inferior structure and inadequate staffing of most of the 55 mixed poorhouses, and the bad tradition which hinders their development. Nothing short of the removal of the sick from these institutions to proper hospitals will, in its opinion, enable the ideals underlying the Act of 1929 to be achieved. It should be one of the first aims of local health administration. The retention under the Poor Law of some of the largest and most up to date of the transferred hospitals, such as those in Glasgow, is a matter for some surprise, but it must be remembered that the Scottish Local Government Act contained a saving clause in Section 12, enabling a council to transfer administration of an institution to another committee than the public assistance committee "for the purpose of coördinating the services provided by the council," an action which could not be taken in England and Wales without the formality of appropriation. In effect, therefore, it is possible in Scotland to substitute the spirit of public health administration for that of the Poor Law, while leaving the selection and admission of patients under the old régime. It is a compromise, however, which should be temporary and is bound to hinder that full coöperation with the voluntary hospitals and medical schools which the department desires.

LOCAL OBSTACLES

While some progress in hospital reorganisation is recorded in 1934, the department is meeting with obstacles of local interest, prejudice, and inertia for which, no doubt, they were prepared. An attempt to centralise accommodation for infectious diseases in Ayrshire has failed because of disagreement as to

[1] Sixth Annual Report of the Department of Health for Scotland, 1934. H.M. Stationery Office. 3s. 6d.

methods between the county and Kilmarnock town councils. An effort to persuade Dunfermline town council to look far ahead in its planning of new maternity beds, so that they should ultimately form part of a hospital centre, was only partially successful. The town council of Stirling seems to be determined upon the improvement of its own small fever hospital rather than coöperation with the county council. In spite of more enlightened movements in Inverness and Fife, the department records that progress in hospital reorganisation has been slow and, on the whole, disappointing.

APPOINTMENT OF A DIETITIAN AT HAMMERSMITH HOSPITAL.—Among the special cases concentrated at Hammersmith Hospital will be many requiring special dietetic treatment, and a special dietetic kitchen is being arranged, to be ready for use, if possible, by July 1st. All the L.C.C. hospitals have food supervisors in charge of the ordinary kitchens, but it is proposed to put a dietician in charge of this kitchen at a salary of £150–£10–£200, together with board, lodging, washing, and uniform.

L.C.C. AND I.C.A.A.—The London County Council having been informed by the Invalid Children's Aid Association that its provision of convalescent treatment for children referred to it by hospitals, care committees, and the like, is likely to be curtailed by lack of funds, the Council proposes to use the services of the Association for the disposal of children for whom the Council is itself unable to provide. Capitation payment will be made at the rate of 7*s.* 6*d.* a week for eight weeks, and the situation will be reviewed in six months' time.

PANEL AND CONTRACT PRACTICE

A National Laboratory Service

IN the teaching hospitals the medical student is called upon to devote a large part of his time to laboratory work, both practical and theoretical, but so far as the medical man going into panel practice is concerned, this part of his training is largely nugatory, for the National Health Insurance Acts make no provision whatsoever for any form of laboratory service for patients insured under the Acts. The insurance practitioner may prescribe what he likes in the way of drugs, proprietary or otherwise, but he is given no facilities for ascertaining in the first instance whether his diagnosis be correct, and in the second the response of his patient to the treatment given. Sir Ernest Graham-Little recently asked the Minister of Health if provision could not be made at an early date for such a laboratory service, but the Minister held out no hope of any immediate extension of the scope of medical benefit in this direction. A memorandum issued by the Association of Clinical Pathologists points out that in certain districts, e.g., Manchester and Wigan, local arrangements have been made, rendered possible by loop-holes in the Acts, and for the reason that unallocated funds happened to be available. In other areas, e.g., Chester and Wolverhampton, laboratory facilities have been offered by the local voluntary general hospitals at special cheap rates. The Association holds the view that a matter of this importance should be dealt with otherwise than by taking advantage of loop-holes in Acts of Parliament or by the charity of voluntary hospitals, and for some years past it has been urging the inclusion of laboratory examinations as a benefit under the National Health Insurance Acts. A schedule of charges has been drawn up at which the investigations essential in general medicine can be performed without loss to the laboratories performing them. The Association is of the opinion that clinical pathology can only be properly carried out by those in close touch with clinical medicine, that is to say, in the laboratories attached to general hospitals. There exists to-day a network of such laboratories conveniently distributed over England and Wales in all the more important towns; with their aid the pathological services needed by insured patients could readily be met.

The Practitioners' Fund for 1934

The amount of the fund has been finally determined by the Ministry of Health at £6,676,573. This amount is subject to economy deductions, 10 per cent. for the first half year, and 5 per cent. for the second, the amount available for distribution being £6,175,830. Insurance practitioners therefore contributed from their remuneration in 1934 over half a million pounds towards placing the country on a sound financial basis. It is to be hoped that the Chancellor of the Exchequer, in view of his Budget surplus, may be able to restore the capitation fee to its normal value during the present year.

London's share of the fund continues to decrease. In 1933 the areal percentage was 12·6666, but for 1934 it was 12·5685, producing £776,209. Of this amount £762,645 10*s.* had been distributed by way of quarterly advances, so that including a balance of £1 7*s.* 11*d.* brought forward from 1933 there remains £13,564 to be distributed, as compared with £18,892 last year. The total payment for 1934 will amount to 8*s.* 7·4932*d.* per unit of credit, as compared with 7*s.* 11·4652*d.* for 1933. Some of this increase is, of course, due to the remission as from July 1st of half the economy deduction, but the clearance of the medical register which took effect as from Jan. 1st, 1934, made a difference of nearly sixpence in the value of the unit of credit in London.

The amount of the fund for 1935 has been provisionally determined, after deduction of 5 per cent., at £6,050,000, and, as in previous years, the Ministry state that it must not be assumed that the final determination of the fund will necessarily enable any additional payment to be made to practitioners at a later date.

What is a Partnership?

This question sometimes becomes a conundrum. It was related in this column on Feb. 2nd that Dr. A. and Dr. B., having between them a list of some 5000 insured persons, were said to be in partnership. Dr. B. left the practice and Dr. C. joined Dr. A. as a partner, signing the necessary form, in which it was declared that Dr. C.'s share of the profits was not less than one-third of Dr. A.'s. Information having been received about the terms of the agreement between Dr. A. and Dr. B., the committee refused to recognise Dr. C. as a partner until the partnership deed had been produced for inspection. The committee's solicitors held that Dr. C. was not in the position of a principal and that his share of the profits was obviously less than a third of Dr. A.'s share. The insurance committee agreed with the legal opinion, and it was expected that the firm would be surcharged for the 1000 patients or so exceeding the maximum permitted to principal and assistant. The practitioners having been informed of this decision, their solicitors wrote contesting it but expressing the willingness of Drs. A. and C. to consider any change in the partnership deed which the committee's legal advisers might suggest as desirable.

A conference between the solicitors for the two sides has been arranged, but meanwhile the question arises as to the basis upon which payment should be made for the quarter commencing Jan. 1st, 1935. The allocation scheme lays it down that a practitioner shall be given a period of two months from the date upon which an excess number of insured persons on his list was discovered within which to make arrangements to bring his list into conformity with the scheme. The areal distribution scheme (which in this respect differs from the model distribution scheme) provides that for the purposes of the distribution of the practitioners' fund the number on the list of a practitioner shall not in any case be deemed to exceed 2500 in the case of a practitioner practising otherwise than in partnership. . . The effect of the committee's decision of Jan. 24th is to place Dr. A. in the position of a practitioner practising otherwise than in partnership, but it appears that by the terms of the allocation scheme (which would seem to be somewhat in conflict with the distribution scheme) he has a period of grace of two months as from Jan. 24th within which to make arrangements for carrying out the requirements of the regulations. Payment to Dr. A. and Dr. C. for the current quarter will accordingly be based upon their actual figures of credit.

A Revised Scheme at Newcastle-upon-Tyne

On April 3rd the city council of Newcastle-upon-Tyne adopted a revised scheme of payment for the medical practitioners working the open-choice method of providing domiciliary medical services in the city. The position was set out in this column a fortnight ago. Instead of participating in a fixed pool of £1200, which was the amount provided for the six districts concerned, the scale of remuneration will now be as follows:—

(1) 20*s*. per annum for patients receiving medical treatment throughout a period of 12 months;
(2) 5*s*. per quarter for short-period cases;
(3) special fees payable for confinements, fractures, certificates, &c., to remain as at present.

The scheme is to be tried out for the year beginning April 1st, 1935; payment on the same scale will be made retrospective to Nov. 8th, 1934. It is anticipated that the new scale of remuneration will produce 1*s*. 3½*d*. per unit service as contrasted with 5½*d*. under the pooling arrangements. The original scheme applied to six of the ten medical relief districts in the city. A seventh district has now been added. The estimated cost of domiciliary medical services, exclusive of drugs and dressings, is estimated at £3485 a year.

An Urgent Night Call

An insured person attended at a practitioner's surgery on an evening when he was away and a locum tenens in charge. She declined his offer to open a whitlow under an anæsthetic, but undertook to apply hot fomentations at home, it being understood that she would call at the surgery on the following morning. During the night pain became intense, and at about 4.30 A.M. application was made by her sister and a friend at the practitioner's residence for an immediate visit as the insured person had fainted. The messengers were informed by the practitioner's mother that he was out, and they intimated that, in the circumstances, they would have to obtain the services of another doctor. This they did and incurred thereby expenses amounting to half a guinea. The London insurance committee, in considering the question of responsibility for this fee, elicited the fact that the practitioner's mother was acting under his direction when she informed the messengers that he was not at home, although as a matter of fact he was standing on the stairs listening to the conversation. There was some divergence of testimony as to whether the patient's name was mentioned—she lived at a house which is also occupied by other families—but it was clear that no application was made in terms for a visit to an insured person. The practitioner stated that although he would not have responded to a call from a private patient, he would have responded if he had understood that the application for his services was in respect of one of his insured patients. The medical service subcommittee in its report states that it is, of course, desirable that an insured person applying for treatment, or a messenger applying on behalf of an insured person, should indicate to the practitioner that treatment is required for an insured person; and if the practitioner has any reasonable doubt about the identity of the applicant, he is entitled to require the production of the medical card. But in this case it was felt that the messengers having been informed that the practitioner was out, their view that in his absence the question whether the patient was insured or not did not arise was perfectly reasonable. Having regard to the hour and the emergency, the failure on the part of the applicants to indicate that the practitioner's services were required for an insured person seemed to the committee of secondary importance in view of the incorrect information given to them by the practitioner's mother. The subcommittee found that the practitioner had committed a breach of the terms of service in failing to provide treatment to an insured person who had applied to him; and that expenses amounting to 10*s*. 6*d*. were reasonably and necessarily incurred in obtaining the services of another practitioner. The insurance committee adopted the subcommittee's recommendation that the practitioner should be required to accept responsibility for the payment of the fee to the other doctor.

POLICE CONVALESCENT HOME AT HOVE.—No fewer than 1016 police officers were received by the Police Convalescent Home at Hove last year. Of these London supplied the large majority, and at the annual meeting on March 18th Mr. Max Page, consulting surgeon to the Metropolitan Police, stated that during the ten years he had been sending men to the Home they had always returned absolutely sane in body and mind. Unfortunately the financial position is causing some concern, for the credit balance amounts to only a few pounds. In the absence of the Home Secretary, Sir John Gilmour, the proceedings were presided over by Mr. Norman Kendal, assistant commissioner to the Metropolitan Police. Lady Gilmour represented her husband. Warm tribute was paid to the hon. medical staff, Dr. E. Wight, and Dr. C. Curwen; also to Miss M. Kerr, hon. lady superintendent.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—An afternoon course in psychological medicine will be given at the Maudsley Hospital from April 23rd to May 31st. Other forthcoming courses include dermatology at the St. John's Hospital (April 29th to June 1st); medicine, surgery, and gynæcology at the Royal Waterloo Hospital (April 29th to May 11th); thoracic surgery at the Brompton Hospital (May 13th to 18th); chest diseases at the Brompton Hospital (two afternoons a week at 5 P.M., in June); chest and heart diseases at the Victoria Park Hospital (two afternoons a week, at 6 P.M., in June); evening clinical and pathological class (two evenings a week in June). Week-end courses include cardiology at the Victoria Park Hospital (May 4th and 5th); chest diseases at the Brompton Hospital (May 11th and 12th); and fevers at the Park Hospital (June 15th and 16th). Courses of instruction and clinics arranged by the fellowship are open only to members and associates, with the exception of the course at St. John's Hospital.

PARLIAMENTARY INTELLIGENCE

OSTEOPATHS BILL

Select Committee's Inquiry

(*Continued from p. 836*)

THE Committee's inquiry continued on Friday, April 5th and Monday, the 8th, with Lord AMULREE in the chair.

Presentation of the Book

At the outset Mr. THORPE, K.C., principal counsel for the promoters, presented to the members of the Committee copies of a book entitled "The Scientific Basis of Osteopathy." The book, he said, had been written by Dr. Kelman Macdonald in the last eight days, and set out, so far as had been possible in the time available, the justification for osteopathy.

Sir W. JOWITT, K.C., principal counsel for the British Medical Association, said that he did not object to the presentation of this book, though it was a rather odd procedure. He had the honour of being referred to in the book, which apparently contained criticisms of what he had said. The book had taken eight days to write, but how long it would take to read intelligibly he did not pretend to say.

Mr. THORPE explained that the book had been largely inspired by Lord Dawson's invitation to Dr. Macdonald to produce any scientific basis for osteopathy which was available. If there was anything in the book on which Sir W. Jowitt would like to ask questions he would ask permission for Dr. Macdonald to be recalled.

Lord DAWSON said he had asked that the original papers already published should be produced.—Mr. THORPE said that they were reproduced word for word in the book.

Lord DAWSON suggested that the book was really a reprint of the 18 research bulletins, plus extra information.—Mr. THORPE agreed. I understand, he said, that the bulletins are there in toto.

Sir Morton Smart's Evidence

Sir Morton Smart, M.D., late medical officer in charge of the electrical department of the Hospital for Sick Children, Great Ormond-street, was called in opposition to the Bill. In answer to questions by Mr. DICKENS, counsel for the British Medical Association, the witness said that since 1896 he had devoted his chief attention and study to manipulative surgery and medicine in all its branches. He had written a text-book and articles on the subject, and had done a great deal of practice in manipulative surgery, particularly in the case of traumatic damage to bones and so on. His view was that manipulative surgery was a valuable method of treatment in certain cases. Those who undertook it should understand the scientific basis on which it depended, and have a knowledge of anatomy, physiology, normal joint action and movement, and pathological conditions. This method of treatment must be preceded by clinical diagnosis. While it was of great value in certain cases, it could in others do great harm. Commonly it was employed in association with, or as a preliminary to, other treatment. The value of such treatment was widely recognised by the medical profession, but it should not be applied indiscriminately and unscientifically. He had studied osteopathic literature both in this country and the United States of America, for many years, and he had visited that country several times.

THEORY AND PRACTICE

COUNSEL: You know what the theory of osteopathy is?—WITNESS: Yes.

Are you a believer in the theory of osteopathy?—No.

Have you attempted to understand all the matter which has been put before the public and the profession by the osteopaths?—Yes.

Have you found any evidence of any scientific basis for the theory which the osteopaths hold?—Not for the theory.

From what you know of the theory should it be capable of scientific proof, if it were true?—I think if the theory were true, in view of the large number of people in the world suffering from diseases and disabilities, it would be impossible not to prove it.

Would you go further in regard to the claims in regard to acute disease and say that the untruth of the theory of osteopathy is demonstrable?—Yes.

You would say that it could clearly be demonstrated that their claim for instance in the case of infectious disease is without foundation?—Yes.

Is osteopathy in practice valuable in certain cases?—Yes.

Can you say the extent of its value—it is not of universal value?—Osteopathy—and when I say osteopathy I am referring to manipulative surgery—is definitely useful in a large number of cases. And in the cases in which it is useful it can be shown that the reason is that it is based on well-known pathological knowledge.

The theory of osteopathy has grown considerably since the days of Dr. Still?—Yes.

And have osteopaths apparently been more and more ready to adopt other such therapeutic agents as the medical profession use?—There is overwhelming evidence, both in America and in this country, that osteopaths, while trying to adhere to the original theory of Still have wandered far from that theory and now embrace practically every method of treatment known to scientific medicine.

What do you deduce from that as to the value of the original theory?—I deduce from that that the osteopaths themselves have realised that the original theory cannot possibly be the cause of all diseases and therefore in the name of osteopathy they have taken over every method they could lay their hands on to get results.

Replying to further questions by counsel as to how, in his opinion, osteopaths should be employed, and whether he thought they should be given complete charge of a case from the beginning to the end, the witness said he thought definitely that osteopaths should work under the direction of a medical practitioner who had studied the question. It appeared to him that if any body of practitioners were to be legally allowed to treat the sick, whatever their treatment might be, they should pass a minimum standard similar to that of the medical colleges.

THE VALUE OF PUBLIC DEMAND

In answer to a question by counsel as to the value which he placed on any public demand in these matters the witness said that he thought that the public did not inquire carefully enough into these matters. Most people were liable to think that a treatment was a good treatment because they knew of a case which had been successful while under that treatment; but they did not go closely into the question as to whether it was cause and effect. There were hundreds of examples of that, and the point about the vox populi was that though it might be stated that the public wanted osteopathy, and that might be true, the section of the public who wanted this treatment was far smaller than the public themselves believed. He contended that it was the people who had gone to osteopaths and had been successfully treated who were mainly those who were called the vox populi. On the other hand, there were a large number who had gone to osteopaths and had not been successfully treated.

Lord ELIBANK asked if that would not also apply to doctors. Was that an argument against osteopathy?—WITNESS: Decidedly. It bears out my point that it is not due to successes that a treatment is scientifically assigned.

Lord DAWSON suggested that the point was this, that it was not good evidence for the establishment of any treatment to bring forward a series of isolated cases, and that if they wanted to prove that a particular treatment was successful or not, that could only be done along the lines of scientific methods by marshalling say 500 or a 1000 cases. That applied to any treatment.

Lord ELIBANK asked the witness whether he would say that the cures in osteopathic cases had only been in isolated cases.—WITNESS said he decidedly agreed that the cures by osteopathic treatment were isolated. It was only a certain type of case that was cured by that treatment.

COUNSEL was proceeding to ask further questions on the attitude of the public towards osteopathy when the Chairman interposed.

COINCIDENT CURE

The witness, continuing, said that in his experience over many years he had been up against this question of explaining to patients why certain treatments which they received did not cure them. If osteopathy or other treatment took place pari passu with symptoms from whatever cause, the patient spoke enthusiastically of its success. The coincident cure in spite of treatment embraced an enormous number of apparent successes. A good example was what was called water on the knee. In a great majority of cases such condition, as far as the presence of fluid was concerned, would clear up in from six to ten days, even if no special treatment was prescribed. If such a patient underwent osteopathic treatment and recovered, it was little wonder that such a patient believed that the diagnosis was right when the fluid which was the main symptom, disappeared. The patient believed that it was the direct result of the manipulation of the spine, and naturally as a result the osteopath gained a convert. There was indisputable evidence that harm had been caused by osteopathic manipulation. Particularly was that the case in regard to the wasting of valuable time in critical cases where the diagnosis had been wrong, and where early diagnosis would have effected a cure or would even have saved the patient's life. There were also serious psychological dangers. There had been a large number of cases where osteopathic manipulation had resulted in damage to the soft structures such as the muscles.

The witness went on to quote from McConnell and Teall's text-book, where it was stated that the general rules laid down were applicable to all dislocations, whether partial or complete, and it was further stated that the practitioner should exaggerate or increase the dislocation. The witness, commenting on this, said that if they were dealing with the dislocation of the spinal vertebræ, and one started by exaggerating it, the danger was something appalling. The damage to the cord would be terrible. If anyone was trying to deal with a spinal dislocation, the first essential was not to exaggerate it because of the damage of further pressure on the cord. With regard to the danger arising from the waste of valuable time in such cases, the witness said that it was well known that many cases of tumour of the brain had been treated by osteopaths for a period, and if that period had not been wasted an operation would have given a very great chance of success. He knew of two cases in his own experience of that kind.

COUNSEL: That emphasises the value of proper diagnosis before any treatment is attempted.—WITNESS: Yes.

Turning to the phychological effect on the patient, the witness said that some patients went to an osteopath and had a diagnosis made. For instance, they were told that their hip was out, or their pelvis was out, and that various parts of their spine were out. That had a very serious effect on the patient because it put into his mind that these things were wrong. There had been an actual case of a girl who was going to be married. She had a hip which was bigger on one side than on the other as a result of starting riding side-saddle at an early age. Her future mother-in-law took her to an osteopath, who told her that her pelvis was contracted and small, and that it would be very dangerous if she had any children. The result of that was very serious to the mother and the daughter. He (the witness) pointed out that the best way to decide that was to have the girl X rayed, and it proved that there was no contraction of the pelvis at all.

Lord ESHER: Was that a qualified osteopath.—WITNESS: What is a qualified osteopath? He was not a doctor.

THE QUESTION OF REGISTRATION

On the question as to whether osteopaths should be placed on a State register, the witness said in his view it was not in the public interest that State recognition should be given to a group of practitioners who based their practice on a theory which was unsound and unscientific. If the present Bill was passed it meant that in the opinion of those responsible for its passing the foundations of the principles of osteopathy were admitted to be proved, in spite of the fact of the overwhelming evidence that the medical profession of the entire world disagreed upon these essential points, and the natural corollary was that medical and surgical treatment as practised to-day in all civilised countries, should be prohibited in the public interest. If State registration was to be given to osteopaths on the ground of public demand it would be impossible to decline registration to every other cult—chiropractors, nature curers, Christian Scientists, and so forth—who could prove popularity among the public. The witness added that he would say that such people commanded as much public support as the osteopaths.

In regard to qualifications, the witness said he thought it would be intolerable that those who held diplomas of the British School of Osteopathy should be placed on a State register. No college should be recognised for the purpose of a British State register, the standard of which could not be carefully scrutinised and controlled. It would be absurd to recognise for admission to an Osteopathic register qualifications of a lower standard to those of American medical degrees. He did not think it would be a good thing to have powerful American influence in deciding the standards for admission to a British register.

COUNSEL: Is your opposition dictated by any fear of the consequences to yourself and your fellow practitioners?—WITNESS: Many accusations have been made against the powers that be in medicine in regard to their opposition to the Osteopaths Bill, and none has been more constantly reiterated than that which affirms that we resist the registration of osteopaths because of a fear of the competition which would follow the giving of a legal status. Nothing could be further from the truth than that. That aspect of the matter has never even been considered. Whatever may be the sins of medicine in the past, modern medicine is eagerly ready to receive with sympathy any improvement in technique and treatment, any new ideas in pathology, provided that they are scientifically proved, although it may do so with slowness and caution.

Sir Morton Cross-examined

In reply to Mr. THORPE, the witness said that Dr. Mennell and himself could both fairly be regarded as exponents of manipulative surgery. He was certainly in agreement with some of Dr. Mennell's views, though he did not say all.

COUNSEL: As far as practice is concerned, there is very little difference, if any, between the practice of osteopaths and the practice of manipulative surgeons?—WITNESS: I do not see any reason why an osteopath, or any person accustomed to the manipulation of joints, should not do the actual practice of manipulation as well as any other person.

There is the theory and the practice of osteopathy. As far as practice is concerned are you not doing the same as Dr. Macdonald or Mr. Streeter?—Certainly, as regards Dr. Macdonald.

What is a qualified osteopath?—I should say Dr. Macdonald.

You would not regard any osteopath as qualified coming from an American school?—The Americans themselves do not, and I should not.

Unless a man is a qualified medical man first and then an osteopath you would not call him a qualified osteopath?—No.

Do you object to these unqualified people practising?—Certainly not.

Does it amount to this, that you object to any theory and practice in a man who has not taken a medical degree, and that objection disappears as soon as he takes a medical degree?—Not by any means; it is a question of his skill.

The witness added that he disagreed with Dr. Macdonald in regard to the acceptance of the theory of osteopathy. Replying to further questions, he said he gave drugs where necessary, but in most cases where it was essential to use drugs he would hand the case on to a different type of practitioner to himself. But he was not against the use of drugs.

COUNSEL: But you are not a great believer in drugs?—WITNESS: To a certain extent that is true.

COUNSEL suggested that manipulative surgery was comparatively new in England.—WITNESS: It goes back 400 years before Christ.

How many schools are teaching it?—I think practically all the medical schools have now an orthopædic department.

If the situation remained as it was to-day, the right solution, Sir Morton said, was that osteopaths should act under a qualified medical man, but the better solution would be that osteopaths should take a medical qualification first and then practise osteopathy afterwards.

COUNSEL: You would approve if a medical man called in an osteopath and they worked in conjunction?—WITNESS: For treatment.

The doctor would diagnose and ask the osteopath to treat the patient?—Yes.

That is as far as you go?—Yes.

Sir Morton Re-examined

Replying further to Sir W. JOWITT, the witness explained the sort of case in which manipulative surgery is necessary and effective. The main type of case, he said, was that in which there was limitation of joint movement, usually due to adhesions. There was a second class of case in which the tissue, which was an important part of structures, lost its resiliency and affected the movement of the joint. There were also cases of dislocation—e.g., of the cartilage of the knee, &c. In the correct type of case, he said, manipulation was the only useful treatment.

COUNSEL: Do you think you can do any good to a person suffering from measles?—WITNESS: No; I think it is fantastic.

Or pneumonia?—Equally.

If the osteopathic theory is right can you conceive any room left for the use of drugs?—None.

Can you doubt that there are cases in which the use of drugs is necessary?—Most decidedly. I get many cases where I consider it is essential to consult with other doctors because they are outside my line.

I suppose that manipulative surgery requires a great deal of practice to get your hands good, to use a riding phrase. You need good hands and an acute sense of touch, and unless you practice very carefully you cannot do it?—I think it is like everything else where you have a coördinated movement. You have some people who are good at it and some who are not so good at it.

You get a large number of patients sent to you by ordinary practitioners?—Yes.

Have you any doubt that to-day the value of manipulative treatment is fully recognised by the medical profession?—Most decidedly it is—since the war. That was the time when it first came into prominent use. As the result of the war there were many cases which were suitable for manipulative surgery and Sir Robert Jones made a great effort at the time. From that day onwards manipulative surgery has increased unbelievably.

Not long ago we had the Grand National, and I think that no fewer than nine of the riders have been to you recently, have they not?—Yes, including the winner.

I suppose there may be great danger in manipulative surgery unless there is proper diagnosis?—Yes.

THE THEORY OF OSTEOPATHY

Replying to Lord ESHER, who asked if there had been any scientific examination of the theory of osteopathy, the witness said that he had examined thousands of spines and had the record of them in his case-books.

Lord DAWSON: Do you agree that any competition in throwing into the arena individual successes and failures serves no useful purpose in furthering knowledge?—WITNESS: Absolutely none.

And that is equally true whether it is medicine, or osteopathy, or herbalism, or anything else?—Yes.

If you want to test the truth of a theory there are definite methods which have been practised by all workers through the ages?—Yes.

MANIPULATIVE SURGERY

Replying further to Lord DAWSON, the witness said that fractures might be caused by manipulation in the wrong cases. There was bad manipulative surgery, comparable to bad osteopathic manipulation.

Lord DAWSON: Is it true to say that where harm occurs there has been faulty diagnosis?—WITNESS: Yes; faulty diagnosis and faulty technique.

Lord ELIBANK: Where did Sir Robert Jones get his idea of manipulative surgery in the first instance?—I think originally he got his desire to go in for this kind of treatment from a bonesetter—and so did I. Osteopaths did not exist then. When I first started to take an interest in manipulative surgery it was as a result of a bone-setter in Edinburgh. I think Sir Robert Jones's experience was the same in Liverpool. That was before osteopathy came to this country.

Replying further to Lord ELIBANK, the witness agreed that the practice of osteopathy was identical with the practice of manipulative surgery. Osteopathy was merely another name for manipulative surgery. But he did not agree that osteopathy was based on scientific thought and observation because the osteopaths had built up a pathology which, in his opinion, did not exist.

But you told us that the practice of osteopathy was identical with the practice of manipulative surgery. If manipulative surgery is based on scientific thought and observation why is not osteopathy?—WITNESS: Because the osteopath does not give the same pathology for the result of his manipulation as I do.

MANIPULATION AND FITNESS

The witness agreed with Lord Elibank that the same result would probably follow whether treatment was given by a manipulative surgeon or an osteopath if it was a case where manipulation would succeed. A large number of cases went to osteopaths. A large number of them were successful, but a large number were unsuccessful.

Lord MARLEY: Would you think that if patients followed your advice and came for an overhaul from time to time that the result of your examination and possible manipulation might be to prevent them from becoming ill?—WITNESS: It is difficult to answer yes or no. You probably do not realise that the fittest person in the world, if he has all the joints of his body manipulated, will get up and say that he feels good. He gets a feeling of well-being, but that will not prevent him getting pneumonia, or typhoid fever.

Would it not have a psychological effect?—The psychological effect would not prevent infection by the typhoid baccilus.

Lord MARLEY said he understood that a person in a good state of health was less likely to get disease and the witness agreed. If you are fit your resistance is definitely better than if you are not.

Lord MARLEY: Is there any human being structurally perfect?—WITNESS: Most decidedly not. You have only to look round this room. I train every child I can to stand and sit correctly. If you start young it has an amazing effect on their general health. As a rule, in a patient over 21, if he has not been taught to sit and stand correctly, it is too late to correct the spine. It was not necessary to have osteopaths to make children grow up properly.

Would it not help children to have regular examinations?—They are examined and helped by the medical profession, but they take not the slightest notice. For children manipulation was not necessary. It was a question of training them to get their spine into the correct position.

THE OSTEOPATH'S TRAINING

The CHAIRMAN asked the witness whether he thought that a man who had spent five years studying the subjects prescribed in the Bill and who had passed the necessary examinations would still be unfit to make a diagnosis, and the witness replied that it would depend on the standard of the examinations. Ten years' training would not qualify a man if the standard of education was not right. How, he asked, could an osteopathic college be brought up to the standard of the universities, with their superior teaching, laboratory, and financial resources?

This fear about the standard of education makes you fear that an osteopath qualified on that basis would not be able to make a proper diagnosis?—Yes.

WITNESS agreed that if osteopaths had a minimal standard of medical education they would be valuable ancillaries to treatment.

Asked whether a register of qualified osteopaths would not be in the public interest the witness said that a register would not prevent any unregistered person giving osteopathic treatment so long as he did not call himself an osteopath and that immediately would defeat the object of a register.

Sir Farquhar Buzzard Recalled

Sir FARQUHAR BUZZARD, recalled, said that in the scientific world a claim for recognition must be accompanied by prima-facie evidence. There must be something to investigate. The volumes produced by the Still Research Institute had been examined in detail by a number of competent research workers and the conclusion reached was that they did not afford such evidence. It had been claimed before the Committee that skilled manipulation of the spine would prevent all disease and cure particular diseases in the early stages. If that was true it would constitute the greatest medical discovery during the last half-century, and the whole medical profession would welcome it with open arms—as they had welcomed every great discovery when its basic principles had been demonstrated. American scientists had had osteopathic schools and hospitals in their midst for fifty years, and would have gladly told the world that an American was the greatest discoverer of our age; but every medical man of repute in that country—a country which had been the birthplace of many important scientific discoveries—repudiated the osteopathic creed Thousands of post-mortem examinations were conducted throughout the world every week by expert pathologists with the one object of finding abnormalities, and it was inconceivable that the osteopathic lesion had escaped their observation when, according to osteopaths, it was present in every person suffering from disease. Though the British School of Osteopathy had something that was called a pathological laboratory, it had not a single specimen illustrating the osteopathic lesion. America, said the witness, in conclusion, was a young country, and lack of experience had allowed individual States to be rushed into passing very unwise and very confused legislation in regard to various healing cults. But if Great Britain, with all her great traditions of sanity, at this period in her history were to follow the example of the United States in recognising these evanescent cults, she would undoubtedly be a laughing-stock among the nations. The first step was an easy one, but it made retreat exceedingly difficult, as America had already found to her cost.

Speaking of the memorandum submitted by about 800 scientists and teachers setting out reasons against the Bill, Mr. THORPE, counsel for the promoters, said he noticed that there were only 12 signatories from Edinburgh, where, he was told, there were 300 or 400 teachers. "Would I be right," he asked, "in saying that the majority of teachers at universities and medical schools have not signed?"—The Witness: "Quite wrong."

HAS OSTEOPATHY BEEN INVESTIGATED?

Replying to Mr. THORPE, the witness said he had no knowledge that the current doctrine of osteopathy had been investigated in any university laboratory in this country. The fact that osteopaths, by right or wrong methods, had brought relief to sufferers, did not constitute prima-facie evidence in favour of their theories.

COUNSEL: What is the minimum of prima-facie evidence that would be necessary to set in motion this great machinery that is always waiting to consider current theories?

The witness replied by repeating his statement that if the American scientific side of the medical profession had found anything in the osteopathic creed it would have been heard of long ago.

COUNSEL: Quite apart from America, has any British school of research gone out of its way or spent a moment of time considering the theories advanced by osteopathy?—WITNESS: No.

COUNSEL: Will you give the reason?—WITNESS: I have given the reason. There is more than one reason. I explained that something which has been before scientific bodies for fifty years and which has received no recognition, would not seem to be a very likely field for further research.

COUNSEL later asked if it had never occurred to the research workers that it might be in the public interest to explode theories and practice which the witness believed to be wrong. Sir FARQUHAR BUZZARD replied that he hoped they were doing it. They had been doing it before this Committee started, and the question had been recently raised by the introduction of the Bill.

COÖPERATION AGAIN

Later in the cross-examination Mr. THORPE returned to the question of coöperation with osteopaths.

COUNSEL: The minute a man gets a medical degree he can practise osteopathy with impunity. He does not lose caste with his medical brethren?—WITNESS: That depends entirely on a personal question. You cannot make a generalisation.

COUNSEL: If it is a fallacy, would not it be in the public interest to say that no one who comes under the control of the British Medical Association shall practise osteopathy? Take a man like Dr. Macdonald who is an unashamed and unmitigated osteopath; is it in the public interest that he should be allowed to continue these fallacious theories and practice?—WITNESS: I cannot answer that question.

COUNSEL: I want your views.—WITNESS: I say "No."

Later the witness said he was expressing his own view. He could not object to his practising. He would say he did not think it was desirable to practise as a follower of Andrew Still.

COUNSEL remarked that Sir Henry Brackenbury was rather generous when he said that so far as the increasing recognition of manipulation and the limitation in the use of drugs was concerned he would like to give the osteopaths every credit for having emphasised these points. He asked the witness if he would go so far as that. The reply was: "I give it all the credit that is due."

Is any credit due?—I do not know.

That is most generous of you. Do you agree with Mr. Mennell that each branch of the profession has something to give to the other?—Undoubtedly.

Questions from the Committee

Mr. RADCLIFFE, K.C., Counsel for the Royal Colleges, then examined Sir Farquhar Buzzard. The witness declared that if there was scientific evidence it could be produced in any country to medical societies and the like.

Lord ESHER pointed out that Dr. Macdonald said he had endeavoured to get his theory examined and was ready to produce evidence of it, and the medical people had always refused to examine it. The witness said he knew that Dr. Macdonald had talked to medical societies and had the opportunity of putting forward in a categorical way the evidence which he considered scientific evidence.

Lord ELIBANK: Yet the medical societies have not thought it worth while to pursue the subject?—WITNESS: Having heard it—no.

Lord ELIBANK: Is it not wrong that the Medical Council or medical societies have taken no notice in spite of the fact that osteopaths are practising all over the country?—WITNESS: Why wrong?

Lord ESHER: Because you maintain that they are a danger to the community. What is scientific research for if it is not to protect the public?—WITNESS: It is clear that we could have legislation against anybody practising the healing art who is not qualified, but as a matter of fact we have not got it. There is no legislative action against anybody practising the healing art. We cannot therefore protect the public in that way. The public can go to any cult but they take their own risk. At present they know where they can go to qualified medical men but they can go elsewhere if they like.

Lord ESHER: I suppose you think medicine is securely based on science?—WITNESS: I think it is.

Lord ESHER: When did medicine become scientific?—WITNESS: You could not give a date, but it has become more of a science than an art. There has been an enormous advance in the last hundred years.

The witness agreed that when they bled people and gave a lot of drugs it was a danger to the public, and he admitted it would have been a pity if medicine had then been discouraged and handicapped.

Lord ESHER: And that is what you are now proposing to do with osteopathy?—WITNESS: Yes.

Sir FARQUHAR BUZZARD again pointed out that to say that large numbers of people had been cured was not prima-facie evidence. In the course of answers to Lord DAWSON, he agreed that the crucial difference between manipulative surgery and osteopathy is that the former confines itself to a delimited sphere, whereas osteopathy claims all the diseases. This was the reason why the claims of osteopathy must be opposed.

Lord ESHER asked whether osteopaths would be welcome if they put up their scientific case before the scientific people in this country after the inquiry. The witness replied that they would.

Lord ELIBANK: What chance would the osteopaths have if they put up their case, in view of the statement signed by so many teachers and scientists? What chance would they have of proving anything? Is not it prejudged in that statement?—WITNESS: No. I do not admit prejudice against osteopathy but I am against it.

When the Committee met again on Monday, Sir NORMAN WALKER, President of the General Medical Council, gave evidence on behalf of the Council. He submitted to the Committee a lengthy memorandum which the Chairman said would be included in the minutes of evidence.

Memorandum from the General Medical Council

This memorandum of evidence opened with a résumé of the conditions of practice in Great Britain and Ireland before the establishment in 1858 of a register of qualified medical practitioners, and the constitution of a Council to keep this register. It went on to describe the functions of the Council in regard to registration and medical education, and then, as the body entrusted with the care and maintenance of the Medical Register, to offer observations on the provisions of the Bill as it stands.

The Bill, the Council find, is one which appears to contemplate a departure from the policy hitherto pursued in legislation in regard to the practice of medicine in this country. The Medical Acts have not been directed to the creation of any monopoly in the healing art, but merely to ensuring the maintenance of a register designed to inform the public of the names of those persons who have carried out a sufficient curriculum and passed examination tests sufficient to justify the appellation "qualified." The standard required by the General Medical Council for qualification and registration has not remained stationary, but has steadily risen with the increase in medical knowledge. It would appear that the provisions of the Bill would create some confusion in the mind of the public, since the new register of osteopaths proposed to be set up would contain the names of persons whose standard of education varied from that laid down by the General Medical Council for medical practitioners; and the Bill would further appear to have the effect of substantially restricting the practice of medical practitioners registered under the Medical Acts in certain directions wherein they now practise freely.

CLAUSE 2.—"THE PRACTICE OF OSTEOPATHY"

The Council are unable to find in the Bill any definition of the scope of this practice or of the nature of that which is to be practised.

The omission from the Bill of any precise definition of osteopathy is, however, a matter of crucial importance to the public, for by Clause 8 of the Bill every person (whether a registered medical practitioner or not) who is not registered as an osteopath is prohibited under penalty from practising the undefined, or holding himself out as a practitioner of it, or as being prepared to practise it.

The Memorandum prefixed to the Bill (which would have no statutory effect if the Bill became law) appears to be intended to suggest (1) that there is an easily identifiable "art and science of healing as defined under this Bill" (Memorandum, line 22), and (2) that the proper definition, which is nowhere to be found in the text of the Bill, would be to the effect that osteopathy is "a developing system of treatment of disease by manipulative methods" (Memorandum, lines 2 and 3).

If this assumption be correct, what is proposed by the Bill is to prohibit large and increasing numbers of registered medical practitioners from practising in a branch of surgery which has been followed by qualified practitioners both before and since the passing of the Medical Acts. The minimum medical curriculum laid down in the resolutions of the Council specifically provides that every medical student shall receive (i) practical instruction in surgical methods, including mechano-therapeutics, and (ii) special instruction in orthopædics, if this is not included in the course of systematic instruction (also specifically prescribed) in the principles and practice of surgery, or in the course of instruction in surgical methods prescribed under (i).

Provision is made for the instruction of students in manipulative surgery by the medical schools in which candidates are prepared for the qualifying examinations of every licensing body. Various medical schools have established special departments for instruction in orthopædic surgery (including the use of manipulative methods). Various licensing bodies have instituted post-graduate diplomas in orthopædic surgery (including the use of manipulative methods) which recognise the special efficiency of the holders to practise this branch of surgery.

The intent and effect of the Bill appear to be on the one hand to exclude registered medical practitioners from a field of practice for which they possess the statutory qualification, and on the other hand to admit exclusively to this field persons who remain unqualified and unregistered because they have not gone through the courses of study and examinations requisite under the Medical Acts, to practise an undefined method of treatment.

The position of registered medical practitioners under the Bill is to be contrasted in this respect with the position of osteopaths under the Medical Acts, which contain nothing to prevent a registered medical practitioner from adopting any theory of medicine or surgery, including osteopathy, but contain (in section 28 of the Act of 1858) a provision specifically prohibiting the Council from erasing the name of any person from the Medical Register on the

ground of his having adopted this or any other theory of medicine or surgery. In the enjoyment of the liberty thus secured to them by the Medical Acts, certain registered medical practitioners are understood to have adopted the theory of medicine or surgery known as osteopathy, and to have practised as osteopaths; but no question of the retention of their names on the Medical Register has been or can be raised on that ground.

Sir Norman Walker Examined

In reply to the CHAIRMAN, Sir Norman Walker said that he had been a member of the General Medical Council for 28 years and its president for three. Explaining the position in regard to medical reciprocity, he said that the term did not occur in any Act of Parliament. After a certain amount of previous preparation and after agreement had been reached, the Privy Council, if it thought fit, applied Part II of the Medical Act of 1886 to a particular country in respect of reciprocity. We have in this country, he said, medical reciprocity with two countries—Italy and Japan. In Japan, as in many oriental countries, there were grades of doctors; Japan only asked this country to accept the equivalent of its highest grade. In most other foreign countries it was necessary for a medical man to become naturalised before he could practise there. Part II of the Medical Act, 1886, was applied to any Dominion of the British Empire if they wished it. It was applied now to New Zealand, Australia, South Africa, and parts of Canada. Canadian medical legislation was not quite the same as our own, because each province had its own conditions. There was no medical reciprocity between us and the United States. The witness added that some years ago he went over to the United States to explore if there was any way of arriving at nearer reciprocity. There was in the United States a voluntary Association and National Board with medical examiners extending all over the States. Most of the States accepted their examination instead of their own. There was a joint agreement arrived at between the licensing bodies and the colleges in this country and the National Board, that they would each admit to their final examination graduates from both countries, but they must pass the examination.

CHAIRMAN: Must they take a course of training?—WITNESS: That depends upon the licensing body; I think all of them require some instruction in this country

NO MONOPOLY OF HEALING

Mr. THORPE, cross-examining the witness on behalf of the promoters, called his attention to a passage in his memorandum in which it was stated that the Medical Acts had not been directed to the creation of any monopoly in the healing art. He asked the witness to explain why he took that view.—WITNESS said that he could not regard the medical profession as possessing a monopoly. It was perfectly open for anyone to take the advice of any person he likes. The Medical Acts were passed to establish that there were certain people who had gone through certain regulations.

COUNSEL put it to the witness that he must accept the fact that there was a monopoly in regard to Government appointments.—WITNESS said that was so, because legislation had been passed confining those appointments to persons whose names appeared on the Medical Register.

COUNSEL: Your memorandum states that if this Bill was passed it would create confusion in the public mind. Why is that?—WITNESS said he certainly thought there would be some confusion if another register was introduced. Everyone would not differentiate between those who were on a register for one form of healing and those who were on another.

A ROYAL COMMISSION OF INQUIRY

Lord ELIBANK asked the witness if he would favour an investigation into the whole of the principles of osteopathy.

Sir NORMAN said he would have no objection to an investigation. I think, he added, that the history of medicine is very illuminating in this way. It took more than half a century to get the Medical Act through Parliament. There was an enormous number of Bills introduced into the House of Commons, and in 1881 the Government appointed a Royal Commission to inquire into the question. As a result the Act of 1886 was passed.

You suggest that the investigation should take the form of a Royal Commission.—I would be quite in favour of that.

Who in your judgment should sit on such Royal Commission; what class of people? Take the statement of Sir Farquhar Buzzard and the 800 people of great distinction in the scientific world who signed that statement to the effect that there could be no compromise between medical science and osteopathy; they were incompatible and contradictory; would those gentlemen who made that statement be reliable investigators of the principles of osteopathy if they were on a Royal Commission?—WITNESS said he thought there must be a general opinion, even among their Lordships, that it was very difficult to know what osteopathy was. But he certainly thought that there were a lot of names on the memorandum referred to who would be quite suitable to be members of such a Royal Commission.

You really think that you could get a Royal Commission on this subject that would be impartial and unprejudiced and which would examine the question with fresh minds?—WITNESS said he thought that such a Royal Commission could be set up.

I take it therefore that you do not rule out of your mind that there is possibly a great deal in osteopathy?—WITNESS said it was very difficult for a medical man trained as he had been as a pathologist to accept the theory of osteopathy.

Lord ESHER remarked that Sir Norman was the first medical witness who had been before the committee who had not shown prejudice against osteopathy without having examined it.

THE CURRICULUM

Asked by the CHAIRMAN to state his view about the proposed amendment of the Bill extending the period of osteopathic training from four to five years, Sir Norman said that for years the General Medical Council had been raising the standard of medical education. The Council did not act by compulsion, but rather followed methods of peaceful persuasion. All the teaching bodies now accepted five years as the minimum curriculum of study. The Council welcomed the attitude of some bodies who did not think that five years was enough. There were several universities which now required six years' medical study, and the G.M.C. had nothing to say but commendation.

As far as you are able to judge, do you think five years sufficient for the training of an osteopath?—If osteopathy is what it claims to be I think it would be well that the person practising should have gone through a curriculum as long as that for a medical degree.

The witness went on to say that the General Medical Council were now reviewing the reports of their inspectors to see whether there ought to be further changes in the medical curriculum. It was not unlikely that there might be changes made in the curriculum so far as the first two years were concerned. There was a strong feeling that certain parts of the curriculum had outlived their usefulness. As showing that medical schools were now providing instruction in manipulative surgery, the witness said that Liverpool was granting a Mastership of Surgery in Orthopædics. The medical profession were now devoting more attention to manipulative methods.

Lord REDESDALE asked if the teaching in the medical curriculum was directed to the prospect of the practitioner himself making use of it.—WITNESS: Yes. In the surgical out-patient department this is a very important part of the treatment.

ANÆSTHETISTS FOR OSTEOPATHS

Asked by the CHAIRMAN whether medical practitioners could act as anæsthetists for osteopaths, the witness said that it was rather a curious thing that

while the public was very ready to take all kinds of advice from osteopaths and others, they had peculiar faith in medical men in regard to the administration of anæsthetics. It was not illegal for anyone to give anæsthetics. He agreed that the difficulty was that if a fatality occurred an unregistered man might get into trouble, whereas in the case of a medical man the presumption was in his favour. The only person whose name had been erased from the register for giving an anæsthetic for an unregistered man was Dr. Axham. All such charges were carefully gone into, and he decided whether the charge or complaint was such that the practitioner concerned should be asked for his side of the story, or rather, for an explanation. The practitioner was written to at his (the witness's) direction, and if the explanation seemed to him satisfactory he did not bother the Committee with it; but if it did not it went before a special Committee of the Council known as the Penal Cases Committee, which considered every aspect, and the only complaints which they sent in to the Council were those which in their judgment were serious.

Lord ESHER asked if the general effect of the Council's rules at the present time would frighten an anæsthetist from assisting Dr. Macdonald because he was an osteopath.—WITNESS: I do not think so. If a charge were made against a doctor of giving anæsthetics for a registered practitioner, even if he was an osteopath, I do not think that it would be sustained.

Lord REDESDALE pointed out that it had been stated to the Committee that some doctor refused to make a culture for Dr. Macdonald on the ground that he was practising as an osteopath.—WITNESS said that was narrow-mindedness.

CHAIRMAN: If a medical practitioner was making a practice of assisting an osteopath would he be liable to have his name erased from the register?—WITNESS: He would be liable to have his case considered.

But would he be liable to have his name struck off?—WITNESS: I cannot commit the Council. The Council, he added, was a judicial body, and it did not pronounce what it was going to do beforehand. If in terms of the standing orders and warning notice a practitioner was enabling an unregistered person to practice as if he were a qualified practitioner then he would be charged.

Prof. Gask's Evidence

Prof. G. E. GASK, director of the surgical unit at St. Bartholomew's Hospital, then gave evidence. Replying to Mr. RADCLIFFE, counsel for the Royal Colleges, he emphasised the importance of a thorough training in surgery for anyone who was to practise the healing art. Sometimes a disease would simulate an injury and sometimes an injury would simulate a disease, and it would be difficult and might be unsafe to make a diagnosis unless familiar with all forms of disease. It was not compatible with his experience to say that there was any one chief cause of disease. Re-examined by Mr. D. L. JENKINS, the witness spoke of his experience in post-mortem examinations extending over forty years. If the osteopathic lesion was detectable in such examinations it ought to have been detected.

Lord ESHER: You say you have never been able to find the osteopathic lesion. But you have not been looking for the osteopathic lesion for forty years. When did you start?—WITNESS: In the course of my work I have had to examine spines and look at them very carefully.

Lord ESHER: Yes, but were you looking at the spines with the osteopathic theory in mind?—WITNESS: I was looking at them to see if there was any deformity or any disease of any sort.

Lord ESHER: If you had been studying the osteopathic theory for forty years you would not have found it necessary to send for text-books on the subject for the purpose of this inquiry?—WITNESS: I had not been studying the theory from the standpoint that there was one chief factor in the causation of disease and that there was one chief cure.

Lord ESHER: Therefore you have not been making a complete study of the osteopathic theory?—WITNESS: Of the theory that there was one chief factor for the causation of disease, no.

EDUCATION FOR OSTEOPATHY

Lord ELIBANK: Much has been said about diagnosis. Do medical practitioners always prove to be right in their diagnosis of appendicitis? Are not many operations performed in which it is found that the appendix is quite clean and in good order?—WITNESS: It has been so.

The witness added that he did not know whether that happened in many cases and he could not give any statistics about it.

Lord ELIBANK: It seems to me that if the osteopath is a qualified man who has undergone the training indicated in the Bill he should be just as capable of diagnosis as a medical practitioner?—WITNESS: Qualified medical practitioners naturally make mistakes; they are only human. But is it not likely that the man who is fully trained to the practice of medicine would be less likely to make a mistake than one who is not fully trained in all its branches, or who studies one to the exclusion of others? We believe that a man should be thoroughly trained in all branches of the profession up to the limit of qualification.

Lord ELIBANK asked if the witness had studied the Schedule in the Bill setting out the course of study for osteopaths. Prof. Gask said he was not familiar with its details.

Lord ELIBANK: Do you mean to say that you have signed a document like this against the Bill without having read the Bill? I wonder how many more of the 1600 persons who have signed this document have read the Bill?—WITNESS: I have read the Bill, but I do not pretend to carry in my head the exact details of the curriculum proposed.

Lord ELIBANK: Is it fair to put out an uncompromising statement like that without having read the Bill properly?—I have nothing more to say.

In answering questions by Lord DAWSON, the witness said that he held that the training for osteopathy should be as good and as long as the training for medicine; and if that were so he thought there would be no necessity for two parallel systems. Replying to Lord REDESDALE, who asked if the art of diagnosis was not more in the nature of a flair than the result of education pure and simple, he said he thought proficiency in diagnosis was the result of many years of study of details. In this connection he did not think that there was any such thing as inborn intuition.

Sir ARTHUR ROBINSON, Permanent Secretary to the Ministry of Health, then submitted a memorandum on behalf of the Ministry.

Memorandum from the Ministry of Health

The Minister of Health desires to put briefly before the Select Committee certain considerations relevant to the proposal for the establishment of a Statutory Register of Osteopaths, and in making these observations he has had regard both to his general responsibility for the health of the people and to his special responsibility for the statutory health services.

WHAT IS THE NEED FOR A SEPARATE OSTEOPATHIC REGISTER?

Before the measure of recognition involved in the establishment of a statutory register is given to osteopathy, it appears to the Minister to be essential that there should be included in the statute a definition of the meaning of osteopathy so clear and precise as to enable it to be differentiated without possibility of mistake from other forms of practice. Unless this can be done proper administration of the register would seem to be impracticable.

It is noted that the Medical Act of 1858 and subsequent legislation have established in this country a system of medical registration based on the principle that all persons

seeking admission to the privileges of the register should satisfy certain common standards of education and qualification. Persons lacking the registrable qualifications are not prohibited from practising the art of heaing, but they are not entitled to hold themselves out to the public as qualified persons, nor can they sue for fees, nor sign statutory medical certificates. It would appear from the schedule to the Bill that the education and training considered necessary for the properly qualified osteopath correspond to a very large extent with the orthodox medical curriculum, and such correspondence appears to raise the question whether there is any sufficient reason for the establishment of a separate register and a separate system of education and qualification for osteopaths. Section 23 of the Medical Act, 1858, specifically guards against any attempt on the part of the licensing bodies to impose upon candidates an obligation either to adopt or refrain from adopting the practice of any particular theory of medicine or surgery, and there is nothing to prevent any person who has gained admission to the Medical Register from practising the art of healing according to the osteopathic theory.

APPROVAL TO AWAIT SUBSTANTIATION OF PRINCIPLES

If, on the other hand, as appears to be maintained, the practice of osteopathy rests upon a fundamental basis other than that of the subjects included in the medical curriculum under the Medical Acts, 1858 and 1886, it appears to the Minister to be incumbent on Parliament to satisfy itself, before giving its assent to the present Bill, that the specific principles and system of healing proposed to be employed by those who will be registered as osteopaths is one which can be properly and safely commended to the public.

It is not within the scope of this memorandum to discuss the scientific and technical issues which underlie the differences between the doctor and the osteopath, but the further elucidation of those issues seems to be a necessary preliminary to the passing of legislation which will confer upon the practice of osteopathy the seal of Parliamentary approval (a fortiori the granting of powers and privileges on such persons). It is understood that those who support the Bill justify it mainly on the ground that it will enable the public to distinguish the qualified osteopath from the unqualified. But the Bill, if passed, cannot fail to do more than that; it will inevitably convey an assurance that a person who has satisfied the statutory tests for admission to the Osteopaths' Register is a person who is, in all respects, well fitted to undertake the various and heavy responsibilities attaching to the treatment of disease. In other words, Parliament will have given some sort of guarantee of the validity of the principles upon which the osteopath exercises his craft. The Minister conceives that Parliament will require such a claim as is here involved to be first very fully investigated and substantiated.

DIFFICULTY OF RECOGNISING EXISTING QUALIFICATIONS

Apart from the scientific issues, there are certain practical consideration which, the Minister suggests, should be taken into account before such a proposal is carried into effect. According to the Bill, there are three classes of persons who will be admitted to the Register:—

(*a*) graduates or licentiates of a British school of osteopathy;

(*b*) holders of certificates granted in a British dominion or foreign country;

(*c*) persons who have been engaged in the practice of osteopathy for three years prior to the passing of the Act and are in the opinion of the Board of Registration fit and proper persons to be registered.

Evidence will no doubt be laid before the Select Committee as to the operations of the British School of Osteopathy, but, as the Minister understands, the register would, in the first instance, be composed for the most part of a comparatively small number of persons who hold American degrees in osteopathy and a much larger number of other persons registered under (*c*) above, all of whom would become entitled to describe themselves to the public as osteopaths registered by Act of Parliament. It is alien to the general principles which have so far been followed in comparable legislation (e.g., that relating to the registration of medical practitioners, dentists and nurses) to recognise qualifications conferred by foreign educational institutions, and it seems a matter for consideration whether a register composed in this fashion is one which Parliament should take the responsibility of commending to public notice. It is suggested that, apart from other and more fundamental considerations, the question of establishing a register of osteopaths by Act of Parliament might well be deferred until a system of education in the principles and practice of osteopathy has been more fully developed in this country by an institution or institutions over which Parliament (or the Board of Registration) would be able to exercise adequate powers of supervision, inspection and control.

On a minor point, it is observed that the Government Department to which it is proposed that the Board of Registration should be made responsible in respect of its regulations is the Ministry of Health. On the assumption that the operation of the Bill is not intended to be limited to England and Wales, it would seem more appropriate to follow the precedents of the Medical Acts and the Dentists Acts by bringing the Board within the jurisdiction of the Privy Council.

EFFECT OF DUAL REGISTRATION ON STATUTORY HEALTH SERVICES

The Minister has an interest in this matter, not only by virtue of his general responsibility for the public health, but also on account of any repercussions which the Bill might have upon certain statutory services for the efficient maintenance of which he is responsible to Parliament. Among the more important of these may be mentioned:—

(1) The accurate determination and certification of the causes of death.

(2) The correct diagnosis and certification of sickness under the National Health Insurance Acts.

(3) The correct diagnosis and certification of infectious disease for the purposes of the Public Health and Infectious Diseases Acts; and

(4) The proper discharge of the medical duties imposed by Act of Parliament on medical practitioners or administered by local authorities and their medical officers and advisers, including the Vaccination Acts, the Public Health Acts, the Mental Deficiency Acts, the Workmen's Compensation Act, and the Midwives Acts.

As regards the first of these, the Bill itself authorises certain classes of registered osteopaths to give certificates of the cause of death, and a separate memorandum by the Registrar-General on this subject is annexed hereto. The matters referred to under (2), (3) and (4) above are not touched directly by the Bill, but the Minister apprehends that the passage of the Bill into law would in all probability be followed sooner or later by further claims from the ostepaths, e.g., for the right to participate in insurance practice and to take a share in the various and important medical duties entrusted to medical practitioners by the Public Health Acts. This consideration strengthens the view of the Minister that further inquiry into the osteopathic system is very requisite.

PROPOSAL FOR A SCIENTIFIC INQUIRY

In the light of these considerations, it appears to the Minister that a sufficiently strong case has not been made out for the adoption of the proposals in the Bill at the present time, and that the proper action at present is to set on foot an organised and careful scientific inquiry into the principles and practice of osteopathy by a body suitable for the purpose. Should this view be taken, those who are now practising osteopathy would, pending the result of the inquiry, have the choice open to them, should they be dissatisfied with their present status, either of qualifying themselves for admission to the Medical Register or of constituting a voluntary register of osteopaths, and

establishing, as soon as may be, effective training institutions in this country for the appropriate qualification of persons who may desire to be admitted to that register in the future.

Sir Arthur Robinson examined

Replying to the CHAIRMAN, the witness said that the sort of inquiry which the Minister had in mind would probably be an inquiry set up by the Medical Research Council, but there were various ways of conducting inquiries of this kind. The principal object of such an inquiry would be as to the validity of the claims of the osteopaths.

The Minister expresses no view about the Bill?—It is not possible for me to say that because the spokesman of the Ministry of Health in the House of Lords debate did, taking all considerations into account, oppose the Bill. That was, I think, done with reference to these considerations and various other considerations as well.

In other words a Bill of this kind should be preceded by a thorough investigation as to the claims of the new science?—Yes.

ADMISSION TO A REGISTER

The witness said that the Ministry had had some experience of statutory registers, and for practical purposes they had to expect that a large majority of the persons practising at the time did obtain admission to the register. The Ministry felt some doubt in this particular case with regard to the admission of persons in category "C," because they understood that one of the reasons of the State register was to safeguard the public. It appeared to them that on previous experience there would be a certain number of persons in practice admitted to the register whose admission, from the point of view of the safety of the public, might seem open to question.

The CHAIRMAN: You would draw a distinction between osteopaths who had no other qualification than three years' practice and persons practising dentistry and midwifery with similar qualifications?—WITNESS: Yes, I think we should. In the other vocations you have normal training or practice in this country over a protracted period. It was perhaps easier to form a judgment as to the suitability of such persons for admission to a State register.

And so far as dentists and midwives are concerned their practice is limited in scope?—That is another factor.

In reply to the CHAIRMAN, the witness said that if the Bill became law and they had on the one hand the registered medical practitioner and on the other hand the registered osteopath, a position of great difficulty would arise from the point of view of public health administration. There would then be a claim on the part of the osteopath to be placed in the same position as the medical practitioner with regard to the various services under the National Health Insurance Acts. From the point of view of the administrator that would be rather difficult unless there had been full inquiry into the training and the validity of the training of osteopaths.

The CHAIRMAN: To sum up, the view of the Minister is that before Parliament should be invited to sanction this Bill a Committee of Parliament itself must be satisfied that osteopathy is on a sound and scientific basis?—WITNESS: Yes.

Lord ESHER: Was the Minister's view as to the need of having a scientific inquiry altered by the evidence given before this Committee?—WITNESS: The Minister is indisposed at the moment and he has not been able to study the evidence laid before your Lordships. I should not advise the Minister to vary the memorandum on the evidence so far submitted.

The Minister does not consider it the function of this Committee to discover the truth or the validity of the osteopathic theory?—It would, I think, be rather improper for me to express a view on that.

THE KIND OF INQUIRY

Answering Lord ELIBANK as to the kind of inquiry which the Minister had in mind, the witness said that the Minister thought that the Medical Research Council might not do the work itself, but set up a body to do it.

Who do this Council consist of?—It is a committee of the Privy Council and consists of both a professional and lay element.

That is very important. From the evidence we have heard there seems to be a great prejudice in the minds of medical people against osteopathy *qua* osteopathy, and I should view with anxiety an inquiry conducted entirely by medical people.—I should think you could rely on the Medical Research Council to set up a body about the impartiality of which no reasonable man would have any doubt.

Replying further to Lord ELIBANK, the witness said he thought the essential point of the inquiry would be the validity or otherwise of the claim of the osteopaths. What followed on that would depend on the decision on the essential point. Pending an inquiry, if the osteopaths wished to differentiate those of their members who were very reliable, they could do what the members of other arts had done, and set up their own register.

Lord ELIBANK: You would recommend that?—WITNESS: I neither recommend it nor disapprove it but if I was an osteopath that is what I should do.

ATTITUDE OF THE MINISTRY

In reply to Mr. THORPE, counsel for the promoters, the witness said the Ministry of Health recommended an organised and careful scientific inquiry, but it was perfectly neutral on the question whether there was a claim or not.

There is some prima facie evidence which justifies you in putting that forward? You do not recommend inquiries unless there is something to be inquired into?—There have been various Bills proposed on this question over a certain number of years and the Ministry has been called often to express such judgment as it could on the issue. We thought the time had come to have such an inquiry.

You have had no assistance from the official medical profession?—There are medical men on the establishment of the Ministry of Health, and obviously before this memorandum was written the advice of those medical men was taken.

If there was some good in osteopathy your department need not look askance at it because it would involve additional administrative burdens?—It would be for the department to do whatever was required of it. Assuming that there is something in the theory and practice of osteopathy, you have to consider whether that should not be superimposed on the medical curriculum. There are other ways of doing it in which administration would be more simple.

In reply to Mr. DICKENS, on behalf of the British Medical Association, the witness said the department had never asked the medical profession for assistance in ascertaining whether there was anything in the practice and theory of osteopathy. The British Medical Association would be called upon in the ordinary course to give evidence at the proposed inquiry but would not be called upon to give financial assistance. He should himself feel it necessary to get more clarity into the Bill. If this practice was to be differentiated from others the definition would not satisfy him. There would be difficulty if they came to administer it.

There are a great number of people who desire treatment by osteopaths. Do you conceive it possible that if osteopaths were placed on a register it would be impossible to refuse their services as part of the State machinery in connexion with national health?—I think it would be quite impossible.

In other words an osteopath panel would have to exist side by side with medical panels?—That is so.

The witness added that if they had the setting up of this register they would have to envisage giving the same privileges to a person on the one register as to a person on the other register.

Supposing a register of osteopaths was granted, without any preliminary investigation and without the claim of osteopathic theory having made good, as osteopaths sought to be done by this Bill, could you see any reason why a similar register should be refused to believers in other forms of treatment—chiropractors, Christian scientists, nature curers, and so on?—If you give this inquiry you obviously strengthen the claim of other artists to similar treatment.

Memorandum from the Registrar-General

Accompanying the memorandum of the Ministry of Health was a supplementary memorandum from the Registrar-General taking exception to the provisions in Clause 7 (2) of the Bill empowering certain classes of registered osteopaths (*a*) "to sign certificates of birth"; (*b*) "to certify the cause of death"; and (*c*) "to sign certificates of death." The Registrar-General finds the Bill does not make clear its intention under (*a*) and (*c*), but under (*b*) important public interests are involved. The medical certificate of cause of death is the foundation of two separate systems contributing to the national welfare, both of great value to the community.

CERTIFICATION OF THE CAUSE OF DEATH

In the first place this certificate is the only means by which deaths attended by specific features needing investigation or inviting suspicion can, as a matter of routine machinery, be linked up with the scheme of public safety embodied in the coroners' system. It is the registrar's duty to report to the coroner, not only deaths of which the causes are wholly uncertified, but also every death of which the certified cause discloses any one of a series of prescribed indications bearing upon the presence of industrial diseases, the prevalence of particular kinds of accident or the possibility of some form of crime or violence. The efficiency of this system depends entirely upon the quality of the material on which it relies.

Secondly, this certificate is the raw material of the extensive body of medico-statistical (mortality) intelligence which plays so important a part in the promotion of the public health. It is hardly too much to say that there is no question or problem, either of health administration or of research into the causation of disease, in which these statistics do not form at least an indispensable background, if not a source of actual illumination. In this instance, also, a great deal depends upon the quality of the certificates, and thus upon the judgment, training, and experience of the practitioners whose conclusions they express.

NO MARGIN OF EFFICIENCY CAN BE GIVEN AWAY

The position, the Registrar-General concludes, accordingly stands thus. The paramount consideration is the quality of the certificates of cause of death; too much depends upon them to permit of any risks being taken in this respect for the sake of improving the position of a particular class of practitioners. If the provisions of the Bill, in fact, secured that the practitioners to whom it entrusts the function of certifying were as a class not inferior to the present class of registered medical practitioners, either in the possession of a trained judgment or in the breadth and extent of their professional education, no question could of course arise. But nothing less will serve. The certification of cause of death is not a simple matter. The standard already reached is still very far from perfection; and the responsible authorities recognise that improvement is desirable and are continually seeking to achieve it. There is thus no margin of efficiency which can be given away—no handicap which can be safely accepted. No opinion is or can be expressed in this memorandum as to the curriculum embodied in the Bill or as to the standard of competence which would be ensured by the provisions of the Bill as a whole in the body of practitioners whom it permits to certify. But in principle the touchstone is a simple one. Unless the new class of certifying practitioners is as fully equipped as the present class of registered medical practitioners in all those respects of training and experience which go to form a sound opinion of the causation of death, their admission must result in prejudice to the important public interests served by these certificates in regard to both public safety and medico-statistics.

Mr. Vivian examined

Mr. S. P. VIVIAN, the Registrar-General, then gave evidence in support of the memorandum submitted by him. He said it was desirable that the practitioners who furnished certificates of death should not be less qualified in regard to theories and practice, which formed the capacity to form a judgment, than the present medical profession. He attached considerable importance to the certificate of death. Not only was there the maintenance of security, but death certificates entered into medical surveys and statistics. The medical profession had agreed upon a catalogue of fatal diseases capable of the classification of mortality. If osteopaths were led to say spinal disease or something which came entirely outside present considerations that would involve a different view of the causes of disease and of death, and would have a very important effect on the value of statistics.

THE CHAIRMAN: In the event of the Bill going through there would have to be some concordat arrived at whereby the two classes of practitioner must have some agreement as to the causes of death?—WITNESS: If that was possible. We want exact statements in the statistics.

You look to death certificates to provide material for further investigation?—Yes. I had not heard that proposals are put forward to leave out the clause which deals with the certification of the cause of death but we thought it necessary to put those views on record.

Mr. THORPE: No osteopath has ever said that a person died of a spinal lesion?—I do not know that. I take it from you. At present there is an exhaustive catalogue of diseases which is agreed upon by the medical profession of the country.

Mr. Elmslie examined

Mr. REGINALD C. ELMSLIE, surgeon in charge of the orthopædic department of St. Bartholomew's Hospital, in reply to Mr. JENKINS, counsel for the Royal Colleges, said that he and his colleagues on the council of the Royal College of Surgeons of England objected to the establishment of an osteopaths' register because it seemed impossible within a reasonable time to arrange for osteopathic training in any way equivalent to the education of the medical practitioner, and also because manipulative treatment—which might be dangerous in the hands of persons insufficiently trained in diagnosis—was already widespread, and available when required. He classified osteopaths in three groups. First were those with a medical qualification: nobody would take exception to their registration, but there were only five in this country. Secondly came those who had taken a diploma in osteopathy in this country, and he thought, from the account given to the Committee, that the training at the British School of Osteopathy would not justify their being included in a register. The third group were those trained in American colleges—some of them acceptable to the British Association of Osteopaths and some not. The witness did not see how a line could be drawn between minor and major surgical operations and maintained that a knowledge of major surgery was essential to diagnosis. Any one who was going to use manipulative treatment ought also to be educated in obstetrics and gynæcology. He did not think a system of education for osteopaths comparable to that available for medical students could be set up in less than five or even ten years.

According to osteopathy, Mr. Elmslie continued, manipulation of the spine might have a general effect. For instance, disease of the foot might require manipulation of the spine. But in all general diseases it was irrational to treat by manipulation a part which had no physiological association with the disease. The osteopath did not take the steps to arrive at an accurate diagnosis that would be taken by the medical man. If osteopathy was a complete system

of healing, based on new theories of disease, then every osteopath should have a qualification which was given to every medical man. If it was a system of manipulative treatment it ought to be an ancillary treatment. The witness went on to describe the position of the Chartered Society of Massage and Medical Gymnastics which illustrated, he said, how a party of professional people, keeping to strict rule, could get its own organisation without having any State protection at all.

In cross-examination by Mr. Thorpe for the promoters of the Bill, Mr. Elmslie said that a great deal of what is described as osteopathy is founded on manipulative surgery.

COUNSEL: You said the osteopathic educational standard was not high enough. Would it not be desirable that people who have reached a high standard should be registered?—WITNESS: Yes.

COUNSEL: Then what is your real objection to the proposals of this Bill?—WITNESS: That register would consist of five names.

COUNSEL: You say they would not be qualified unless they were qualified as doctors?—WITNESS: Of the people whom it is proposed to register there are five who I know have the qualifications.

COUNSEL: Supposing osteopaths say that a great deal of the education does not help them in the practice of osteopathy?—WITNESS: If they did say so I should criticise it very strongly.

Mr. Souttar's Evidence

Mr. H. S. SOUTTAR, also a member of the council of the College of Surgeons, and chairman of the Representative Body of the B.M.A., described in some detail the clinical side of the medical student's training. This was something more than a schedule, he said, and an essential part of it was that the student must have at his disposal a very large organisation. Without such facilities it was impossible in his opinion to become a doctor. At the root of the objection to the registration of osteopaths, however, was another feeling—namely, that osteopathy was essentially fraudulent. A statement was made for which no foundation whatever could be produced—no tangible foundation at all—and on that statement a whole system was built and men achieved their own advancement and remuneration. This statement that a small bone in the spine was out of place was absolute nonsense. It seemed to be generally accepted as a basis of osteopathy that all disease was due to small displacements of the spine. But there was no evidence in favour of this view, and to continue to make that statement without evidence was to expose oneself to a charge of fraud. That was the difficulty in the recognition of osteopathy. Five years' training would not make the slightest difference.

At this stage in the witness's evidence the Committee adjourned.

NOTES ON CURRENT TOPICS

In the House of Lords on April 2nd the Criminal Lunatics (Scotland) Bill was read the third time.

HOUSE OF COMMONS

WEDNESDAY, APRIL 3RD

Yellow Fever on the West Coast of Africa

Colonel HENEAGE asked the Secretary of State for the Colonies if he had any information to give as to the outbreak of yellow fever on the West Coast of Africa; if the outbreak was now stopped; and if the necessary help from research stations and personnel at home had been promptly forthcoming.—Sir PHILIP CUNLIFFE-LISTER replied: Yellow fever is endemic among the natives of West Africa, and thus it is not, strictly speaking, correct to refer to an "outbreak of yellow fever." During the past few months cases of yellow fever have been reported from each of the four West African Dependencies. In the Gambia the first case diagnosed as one of yellow fever (European) proved fatal on Oct. 6th, 1934, and later three other Europeans also succumbed, among whom were Mr. Parish, the Colonial Secretary, and Mr. Hamlyn, Assistant Colonial Secretary. Three African cases were also notified, of which one proved fatal. The usual precautions were taken to deal with this situation, and the Island of St. Mary was placed in quarantine. The order declaring the island an infected district was cancelled on Jan. 18th, since when no further cases have been reported. In this connexion, I would refer to a reply which I gave on Dec. 21st. Between Nov. 21st and Jan. 15th five African cases of yellow fever were notified from the Gold Coast, of which two proved fatal. On Dec. 24th it was reported that two Europeans were suffering from yellow fever in Kano, in Northern Nigeria, but both have since recovered. Previous to this, three Europeans had died at Kano, and it is suspected that they were suffering from yellow fever. A number of African cases, of which one proved fatal, were also notified, and the usual precautions were taken to prevent the spread of infection. On Jan. 21st a suspected case of yellow fever, which was later confirmed, was reported from Sierra Leone. The victim in this case was a European who died on Jan. 26th. With regard to the second part of the question, I am able to say that no new cases have occurred since the middle of January. To combat this disease in the Gambia, assistance was obtained in the first place from the Gold Coast and from Sierra Leone. I should like to take this opportunity of expressing my thanks, and the gratitude of the Government of the Gambia, to Dr. Howells of the Gold Coast, and to Dr. Davey and Dr. Duncan of Sierra Leone, for the zeal and energy with which they handled a difficult situation, and to the Wellcome Research Institution, who kindly gave permission for Dr. G. M. Findlay to visit Bathurst in order to conduct inoculations against yellow fever. The Governor reports that "apart from the inoculations (152 persons in all were successfully inoculated) Dr. Findlay worked tirelessly, investigating the cause and extent of the outbreak, and also gathering a mass of data relating to the incidence of yellow fever and other diseases for scientific examination in London. It would be difficult to express our thanks too warmly or to exaggerate the importance to West Africa of the conclusions to be drawn from his work here."

THURSDAY, APRIL 4TH

Re-pasteurisation of Milk

Major MILLS asked the Minister of Health if he was aware that some distributors of milk collected milk at country depôts at considerable distances from London and pasteurised it there; that they then transported it to London in bulk and pasteurised it again to nullify the effects of contamination and deteriorisation before bottling it for distribution; and whether he was satisfied that this second pasteurisation was a desirable practice in the interests of the health of the consumers.—Mr. SHAKESPEARE replied: My right hon. friend is advised that it is undesirable that milk should be heat-treated more than once, and he was not aware that this procedure is adopted at the present time. It is one of the conditions of the sale of milk as "pasteurised" that the milk should not be heated more than once, and if my hon. friend will supply any evidence of an infringement of this condition my right hon. friend will bring it to the notice of the appropriate local authority.

Malnutrition in Durham

Mr. BATEY asked the Minister of Health what action he proposed to take on the report made on behalf of the President of the Board of Education and himself regarding the condition of children suffering from malnutrition in the county of Durham; and whether it was intended to publish the report.—Mr. SHAKESPEARE replied: This report is now being printed with a view to publication. The question of any action to be taken on the findings in the report is under consideration.

Accident Proneness of Motorists

Captain ERSKINE-BOLST asked the Minister of Transport whether any date had been fixed for the conference between motor insurance experts and representatives of the Medical Research Council to discuss the accident-proneness of

motorists; and if he can state exactly what the agenda at this conference would be.—Mr. HORE-BELISHA replied: Arrangements have been made for a conference to be held at the end of this week between representatives of the Medical Research Council and of Authorised Insurers for informal discussion of the paragraphs in the report of the Medical Research Council (Cmd. 4796) which deal with Accident-Proneness and Road Dangers.

MONDAY, APRIL 8TH

Price of Milk to Institutions in Scotland

Mr. BURNETT asked the Secretary of State for Scotland whether he was yet in a position to make a statement as to the conclusions of the committee of investigation for Scotland regarding the price of milk to institutions which was the subject of a report of the Consumers' Committee.—Sir G. COLLINS replied: I have received the Committee's report, which is under consideration. The committee find that to the extent that local authorities and voluntary hospitals within the area of the Scottish Milk Scheme are now required to pay substantially more for their supplies of milk than they paid before the inauguration of the scheme, the price scale determined by the Board, and their action in giving effect to it may be regarded as contrary to the interests of the said local authorities and voluntary hospitals. With respect to the question whether the determination of the Board in this matter was not in the public interest, the committee find themselver unable to give an unqualified answer. The committee see no justification for the argument that because prior to the scheme a consumer was in a position, owing to the conditions then prevailing, of securing milk at less than economic rates, that fact should be regarded as a reason for fixing lower prices now that the scheme is in operation. The committee also have no hesitation in deciding that the beneficent nature of the work carried out by the local authorities and the voluntary hospitals does not in itself justify a claim to obtain their supplies of milk under the scheme at less than a reasonable price. On the other hand, the committee point out that it would be an unfortunate sequel to the scheme if the consumption of Grade A (T.T.) milk were abandoned to any extent in hospitals or in rate-supported institutions in favour of ordinary milk, and equally unfortunate if the consumption of milk, of whatever grade, were to be reduced. This consideration, coupled with the facts that the institutions are large consumers and do not purchase for trading purposes or for sale at a profit, that there is little expense involved in handling or distribution, and that there is no risk of any bad debts being made by the sellers, suggests to the committee that there is a case for exceptional treatment of these institutions in certain directions. In so far as these institutions have not received such treatment owing to the action of the Board, such action may be said to be not in the public interest.

Dangers of another Drought

Mr. CLEARY asked the Minister of Health what steps were being taken to safeguard the country against the dangers of another possible drought.—Mr. SHAKESPEARE replied: The average total rainfall for the country as a whole for the six months ended March 31st last, the critical months for the replenishment of water supplies, was above the normal, and urban water undertakers generally are in a good position. Should the necessity arise, powers are available to them to obtain additional water supplies with despatch under the Water Supplies (Exceptional Shortage Orders) Act, 1934, which remains in force until the end of the present year. The primary need in the rural areas is for permanent supplies. Good progress is being made under the Act of last year, and the total capital cost of schemes for which State grants have been provisionally allocated is now £3,200,000 for schemes in 1100 parishes.

TUESDAY, APRIL 9TH

Certified and Grade A (T.T.) Milk in Scotland

The Duchess of ATHOLL asked the Secretary of State for Scotland if he could now intimate the decision of the investigating committee in regard to the complaint made by the Association of Certified and Grade A (T.T.) Milk Producers in regard to the Scottish Milk Marketing Scheme.—The Lord ADVOCATE replied: The findings of the committee were announced in reply to a question on Feb. 20th. An Order will now be made to give effect to the proposal that the contribution payable in respect of certified milk sold as such should be at the rate of one half-penny a gallon, with retrospective effect as from May 1st, 1934.

Medical Requirements on Renewal of Air Licences

Mr. EVERARD asked the Under-Secretary of State for Air whether the recommendation of the Gorell Committee on the subject of the medical requirements on the renewal of B licences by captains of large air-liners had been put into effect.—Sir P. SASSOON replied: The Air Ministry is prepared to put this recommendation into effect in appropriate cases.

Supply of Milk in Nursery Schools

Mr. SMEDLEY CROOKE asked the Parliamentary Secretary to the Board of Education what proportion of the nursery schools in the country were regarded as full-time schools and so eligible to receive milk at reduced rates.—Mr. RAMSBOTHAM replied: All the 61 nursery schools recognised for grant by the Board of Education are regarded as full-time schools, and are eligible to participate in the scheme for the supply of milk at reduced rates. I have no information as to the number of unrecognised nursery schools, and am therefore unable to state the proportion of the grant-earning schools to the total number of schools which might be regarded as nursery schools.

Health Insurance Rights

Mr. SUTCLIFFE asked the Minister of Health whether his attention had been called to the number of cases in which insured persons lost the entire amount of their contributions over a long period of years owing to the fact that shortly before attaining the age of 65 they started some small business of their own; and whether, when they ceased to be insured employees, their approved societies notified them that they could preserve their rights by continuing as voluntary contributors.—Mr. SHAKESPEARE replied: My right hon. friend is aware that every half-year a number of persons, after having been insured for a period of years as employed contributors, take up business on their own account, and after a free period of insurance of about 21 months can only retain their rights under the schemes of health insurance and contributory pensions by becoming voluntary contributors. Approved societies have been instructed to inform their members of the position, and my right hon. friend has no reason to think that they fail to do so.

MIDDLESEX HOSPITAL.—The new buildings of Middlesex Hospital are to be opened by the Duke of York on May 29th. He will be accompanied by the Duchess.

KENT AND SUSSEX HOSPITAL.—Criticism which had been levelled against the governors of the Kent and Sussex Hospital, Tunbridge Wells, in spending a sum of £188,422—£200,000 was the original approximate figure—on the erection of a new building on the Great Culverden site, was largely dispelled at the first annual meeting held at the hospital on March 21st. Incorporated in the new building are the Tunbridge Wells General Hospital, the parent institution founded 107 years ago, the Eye and Ear Hospital, and the Kent and Sussex Hospital, and as a whole is now known as the Kent and Sussex Hospital. The building has accommodation for 204 patients, and recently no fewer than 202 beds were in occupation on one day, giving an answer to the suggestion that the governors were not justified in providing for such a number. Furthermore, there is accommodation for 18 private patients, and as many as 14 have already been occupied at one time. Naturally, with the occupation of a new hospital, expenditure had been heavy, and equipment cost more than had been estimated, but the amount in excess of income was met by a number of legacies. The building fund marked an overdraft at the bank of £23,000, but there were the proceeds of the sale of the old General Hospital and site still to be realised.

CORRESPONDENCE

THE NEED FOR MEDICAL PSYCHOLOGISTS

To the Editor of THE LANCET

SIR,—If the need for medical psychologists is so acute, why not go to an obvious source? The asylum services are full of untapped and wasted material. Not all asylum doctors lack psychotherapeutic ability, interest, and experience. Many—through lack of money or opportunity—have had to enter asylum services where they hoped to find some scope for their interests and abilities. Others would welcome opportunities that are never offered them.

At the moment, asylum work is predominantly administrative. Many who are fitted to become psychotherapists and to supply the need which presumably now exists are fretting, losing interest, and becoming discontented. I would suggest there should be a liaison between the asylum and the outside world. The asylum doctor should be encouraged to do paid work outside the hospital. The non-institutional psychiatrist should likewise be given an opportunity to do paid work inside the hospital. This would be made possible by the provision of a large proportion of part-time jobs: quarter time, half time, and three-quarter time. This would require organisation but should be practicable.

Such a liaison would tend to "de-institutionalise" the hospital. It would mitigate the silent contempt that now obtains between the institutional and the non-institutional psychiatrist. It would permit asylum doctors with psychotherapeutic gifts to gravitate towards non-institutional work while retaining a useful association with the hospital; and would allow those with administrative gifts or with an exclusive interest in insanity or who had failed to make good in psychotherapeutic work to seek promotion in the asylum services. It would also allow the non-institutional psychiatrist to balance his experience by taking part in the treatment of asylum patients (including those admitted on a voluntary basis) and would enable him to acquire and retain that very useful capacity for sniffing out the psychotic that every asylum doctor has. It is nonsense to say that this would adversely affect the work of hospitals or the welfare of patients. It is difficult to see how the asylum patient and the asylum doctor could fail to benefit from this breeze from without.

With regard to training surely there can be no doubt that the D.P.M. is merely a minimal requirement for any doctor who is to be allowed to handle mental patients? I would suggest that the requirements for the psychotherapist are: flair, plus training under a master (this will include some kind of analysis), plus experience (this will not exclude insanity and mental deficiency).

It is also helpful to be 40.

I am, Sir, yours faithfully,

April 8th. HENRY HARRIS, M.D.

PROGNOSIS IN PULMONARY TUBERCULOSIS

To the Editor of THE LANCET

SIR,—I should like to echo Dr. Warwick Preston's endorsement of Dr. Vere Pearson's opinion on the subject of employment for tuberculous persons. There is no doubt that almost every worker finds his own job the easiest and most lucrative; and to advise sedentary workers to give up a living wage in exchange for a mythical "light job in the open air" is to counsel their progressive deterioration. I gave that advice twenty-two years ago. I ceased to give it twenty-one years ago; and now it is fortunately rarely tendered and even more rarely followed.

A favourable prognosis will not, however, be secured simply by running counter to such advice. Diagnosis often displaces a man from his employment, and treatment, while it may mend him physically, will not ensure his reabsorption into industry. Even if his employer is sympathetic, his fellow-employees may object to working with him. Thus, suitable as his old job may be, it may not be—and frequently is not—available. What happens then? He may get an open-air job and wear himself out with unaccustomed labour; or he may remain unemployed wearing himself out quite as effectively in a vain search for work. In either case his own resistance and that of his contacts will be lowered, with disastrous results.

Surely, therefore, it is up to us not only to advise a man to stick to his own kind of job, but to go a step further and see that he has such a job to go to? And will not most of our medical work be in vain unless and until we see to it that our advice is not only given, but followed as well?

I am, Sir, yours faithfully,

PENDRILL VARRIER-JONES,

April 5th. Director, Papworth Village Settlement.

THE PROBLEM OF DIPHTHERIA

To the Editor of THE LANCET

SIR,—As one of the authors of the report which Dr. Stallybrass kindly criticises in the latter part of his letter to THE LANCET of March 23rd I would first like to point out that this work should be read as a whole, as nearly every section in it modifies to some extent many other sections.

Dr. Stallybrass thinks we laid too much stress on active immunisation, and not enough on a new type of diphtheria bacillus, as being the "almost certain" cause of the increase in the carrier-rates in Greenwich Hospital School (incidentally, in quoting from the report "almost" was omitted before "certain"). In the light of further observations on *gravis* diphtheria bacilli, which have been published since this report was written, Dr. Stallybrass's objection is perhaps just, and it is probable that some types of *C. diphtheriæ gravis* are capable of causing higher carrier-rates than other *gravis* types. However, this does not mean that, if the type of bacillus remains constant, active immunisation cannot by itself increase the frequency of virulent carriers. I do not think Dr. Stallybrass can exclude the *gravis* carriers, which were found after the active immunisation of the school in the last quarter of 1932, and then compare the resulting rate with the whole carrier-rate prior to the event; because the so-called "intermediate," "barred," or "light growing" *C. diphtheriæ*, which has the most constant and easily recognisable cultural characters, were often in evidence before the school was inoculated. In Manchester, Robinson and Marshall (1934) showed that *intermediate* variants were not significantly less pathogenic than *gravis*, and that they predominated over the *gravis* type present at the time. Moreover, although no starch-fermentation tests were done, *C. diphtheriæ* strains of the rough *gravis* colony type were at times common in Greenwich Hospital School (G.H.S.) before its immunisation.

Unfortunately, the clinical significance of these varieties of diphtheria bacilli was not understood until Anderson, Happold, McLeod, and Thomson's (1931) first paper appeared, so no record of their relative

frequency in G.H.S. was kept before 1931. It is therefore scarcely legitimate to remove the *gravis* carriers, known to be present in one period, for comparison with another period in which they were probably present in unknown quantity. Nevertheless, Parish and Wright's (1935) paper shows that the type of *gravis* at present prevalent in some parts of London must have an exceptionally high "infectivity"; because they found that the carrier-rate for virulent *gravis* bacilli in each of two institutions was 40 per cent. These are the largest reliable carrier-rates for virulent diphtheria bacilli I have heard of: and hence this observation can be used equally well to support the inference that artificial immunisation tends to increase the frequency of diphtheria carriers, because both institutions had been artificially immunised, and in one of them the procedure had been in force for eleven years—six years longer than at G.H.S.

It would therefore be instructive if Dr. Stallybrass could publish the actual figures from the 28 institutions which led him to believe that, "even in the face of a gravis epidemic, the carrier-rate of virulent organisms, apart from children who have had clinical diphtheria, is greatly reduced following upon immunisation." The hypothesis that immunisation may increase the virulent carrier-rate stands or falls on the dictum that the virulent carrier of diphtheria practically never has a positive Schick reaction. Okell, Eagleton, and O'Brien (1924) were so convinced of the truth of this proposition that they stated that in practice the known Schick-positive subjects could be ignored when searching for virulent carriers. Until recently I also firmly believed this dictum was a safe generalisation. But Morales and Mandry (1931) found that virulent diphtheria carriers were more frequent in children with positive than in children with negative Schick tests in Porto Rico; and in G.H.S. at the end of 1932 the difference in the frequency of virulent carriers among these two classes had no statistical significance. However, the number of Schick-positive virulent carriers was so small—namely, five in each instance—that my faith in the general inability of the Schick susceptible to carry virulent *C. diphtheriæ* was scarcely shaken. But I have now learnt (private communication) that these results have been confirmed elsewhere. Therefore, at those times and places where both Schick susceptibles and immunes are equally prone to virulent carrier infection, active immunisation, if all other factors remain unchanged, can have no effect one way or the other on the carrier-rate of virulent *C. diphtheriæ*.

It appears impossible to form wide generalisations on this subject—sometimes the carrier-rate seems to increase, sometimes to fall, as the result of immunisation. Sometimes one cannot discover Schick-susceptible virulent carriers, at other times one can. But what however is as safe a generalisation as any can be in medicine is that the mass immunisation of an adequate proportion of a community will reduce the amount and severity of clinical diphtheria to a negligible quantity.

I am, Sir, yours faithfully,

SHELDON F. DUDLEY.

R.N. Hospital, Chatham, March 31st.

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ARSENIC RESISTANCE IN TRYPANOSOMES

To the Editor of THE LANCET

SIR,—In their paper in THE LANCET of Jan. 26th last Prof. Yorke and Dr. Murgatroyd review the work of various investigators on arsenic resistance in trypanosomes. They make no reference to Uganda in this respect, and I feel it right, therefore, to repair the omission.

In 1930, in a paper published in the *Transactions* of the Royal Society of Tropical Medicine and Hygiene (vol. xxiv., p. 201), I called attention to the importance of studying the resistance to arsenic of strains of trypanosomes recently isolated from man, as a means (one of several) of detecting the presence of *T. rhodesiense*. To facilitate this investigation an appeal was made to the director of medical and sanitary services, Uganda, who requested medical officers in sleeping sickness areas to forward to the laboratory strains of human trypanosomes that had in man resisted treatment with arsenic.

Among the first four strains received at the laboratory was one which proved to be a typical *T. rhodesiense*, and incidentally the first case of this disease recognised within the limits of the Protectorate. In 1929, in the course of a prolonged study of these strains, my colleague, Dr. J. M. Wallace, found that with "typical" arsenic-sensitive *T. gambiense* guinea-pigs were sometimes sterilised of their infection by a single dose of atoxyl as low as 0·01 g. per kg. body-weight, no strains relapsed after 0·03 g. per kg. With *T. rhodesiense* on the other hand relapses occurred after 0·06 g. per kg.

The study of arsenic resistance in untreated strains of *T. gambiense*, *T. brucei*, and *T. rhodesiense* was continued by Dr. Wallace throughout 1930–31–32, with the result that his original conclusions underwent some modification. Ultimately he decided that 0·03 g. of atoxyl per kg. was the critical dose in guinea-pigs. If after this dose, given during the first two or three weeks of the animal's infection, trypanosomes fail to disappear from the peripheral blood for at least a week, suspicion should at once arise that the strain is not a "normal" *T. gambiense*, but either *T. rhodesiense* or a *T. gambiense* possessed of unusual resistance to arsenic.

The actual doses equivalent to 0·03 g. of atoxyl per kilo for a ten, eleven, and twelve-stone individual are respectively 1·91, 2·1, and 2·3 g.—all quantities largely in excess of the safe maximum for this drug. It would thus seem that prophylactic atoxylisation on a large scale would be likely to pass by a number of *T. gambiense* strains whose natural arsenic resistance would merely be enhanced by the injections.

By their failure to refer to this Uganda work Yorke and Murgatroyd give the impression that the authorities cited in their paper, together with themselves, are the only contributors to this relatively important subject. In reality, I believe that the first laboratory work on the degree of arsenic resistance possessed by strains of trypanosomes on their first isolation from man emanated from Uganda. Early in 1933 I was in correspondence with Dr. L. Van Hoof at Leopoldville, in the Belgian Congo, about the examination of strains from that region for signs of arsenic resistance when freshly isolated from man, and a little later we received at Entebbe from Van Hoof a strain strongly resistant on first isolation from the untreated patient.

The quality of arsenic resistance in the trypanosomes of the polymorphic group, to which *T. gambiense*, *T. brucei*, and *T. rhodesiense* all belong, possesses more than a mere clinical interest. In THE LANCET (1933, ii., 553) I drew attention to the possibility that arsenic resistance, which is a regular feature of *T. brucei* and *T. rhodesiense*, might also be a natural characteristic of certain strains of *T. gambiense*, apart altogether from previous contact with arsenical

drugs. This point is one of many that calls for consideration in determining the relationship between man's two trypanosomes. At the moment, the two main views on this problem are either that *T. rhodesiense* is a variant of *T. gambiense*, or that it is a *T. brucei* that is pathogenic to man. The matter is still unsettled. According to the latter view, *T. gambiense* in its typical "human" form, in the course of ages and among several other changes from the *brucei* type, may have acquired sensitiveness to arsenic, a peculiarity which it readily loses again.

It should be remembered that no one, so far as is revealed by the literature at my disposal at the moment of writing, has yet succeeded in preparing from a *T. gambiense* really sensitive to arsenic a strain resistant to arsenic that at the same time retains its transmissibility by tsetse. It is a pity to lose sight altogether of this aspect of the phenomenon of arsenic resistance, academic though it may be, and automatically to ascribe any resistance possessed by *T. gambiense* when first isolated from man to previous contact with arsenical drugs.

I am, Sir, yours faithfully,

H. LYNDHURST DUKE.

Human Trypanosomiasis Institute, Uganda, March 5th.

ERGOMETRINE

To the Editor of THE LANCET

SIR,—The interest aroused by the recent announcement of the discovery of the new water-soluble alkaloid of ergot (ergometrine) by Dudley and Chassar Moir will probably have made some obstetricians wishful to try the clinical use of a substance of such high promise.

By the application of the published details of the methods employed by the above-mentioned workers, the scientific staff of this company has already prepared some ergometrine with a view to its production on an industrial scale; and I write to state that a sample tube of tablets each containing 0·5 mg. of ergometrine will be sent without charge to any obstetrician who applies.

I am, Sir, yours faithfully,

CHARLES ALEX. HILL,
Chairman and Managing Director,
The British Drug Houses Ltd.

Graham-street, N., April 1st.

PHYSICAL CULTURE FOR MENTAL PATIENTS

To the Editor of THE LANCET

SIR,—In your issue of Feb. 16th (p. 407) you reported a discussion introduced by Lord Kilmaine in the House of Lords on physical culture for mental patients. For some years physical culture has formed part of the treatment at this hospital, which to-day possesses an up-to-date gymnasium, the equipment of which includes, among other things, parallel bars, bridge ladders, Roman rings, trapeze, rope ladders, rowing machines, pulley weights, punching ball and sack, Terry's chest expanders, auxiliary expanders and developers, and Sandow's spring dumb-bells. Every morning from 7 to 7.30 all the younger patients, male and female, attend the gymnasium for massed physical exercises under a qualified instructor. This is followed by community singing for half an hour. From 8.30 till 11.30 A.M. batches of patients leave the occupational therapy department to attend the gymnasium for half-hourly periods, when specialised physical culture is studied. At these classes the patients show keen coöperation. The subjects included in the special classes are Indian club swinging, diving and vaulting over a human horse, skipping, boxing, dumb-bell exercises, human pyramids, fencing (with wooden swords), living statuary, acrobatic stunts, Jiu-jitsu, wrestling, and tableaux. A high standard of efficiency is reached and at all the hospital concerts at least two turns by the physical culture classes are included in the programme.

I am, Sir, yours faithfully,

MOORE TAYLOR,
Major, I.M.S.

Ranchi European Mental Hospital, Bihar and Orissa, India, March 13th.

CANNABIS INDICA

To the Editor of THE LANCET

SIR,—Will you allow me to correct an inaccuracy which occurs in an article describing a case of cannabis indica intoxication in your last issue. Dr. Baker-Bates states (p. 811) "there is no law against the possession of or smoking of the plant." This is not the case. The Coca Leaves and Indian Hemp Regulations, 1928 (S.R. & O. 1928, No. 982), apply to Indian hemp the provisions of the Raw Opium Regulations, 1921 (S.R. & O. 1921, No. 864), and it is accordingly an offence for any person (unless he is licensed or otherwise authorised to do so) to be in possession of or attempt to obtain possession of Indian hemp.

I am, Sir, yours faithfully,

WM. H. COLES,
Chief Inspector under the Dangerous Drugs Acts.

Home Office, Whitehall, April 9th.

STERILITY FOLLOWING SYMPATHECTOMY

To the Editor of THE LANCET

SIR,—In his valuable paper in THE LANCET of April 6th Dr. Arthur Hurst stresses the frequency with which sterility follows sympathectomy in male patients, and reports two cases where marked neurosis resulted from failure to warn the patient before operation of this disability. But, in suggesting that similar sex complications may occur in women, Dr. Hurst makes a statement that cannot remain unchallenged. He states that "as most of the females upon whom the operation" (i.e., presacral neurectomy) "has hitherto been performed have been elderly women in whom the sexual functions are already in abeyance, it is still possible that these functions may be seriously impaired if the operation is performed in girls and young women."

Both the fact and the corollary contained in this statement are curiously incorrect. The operation was originally designed for the relief of dysmenorrhœa and this disorder still remains its predominant indication. Consequently, most of the patients have been girls or young women: for example, the average age in my own series, which include several cases of carcinoma of the cervix and late pelvic neuralgia, is 28, and Cotte's larger series gives a similar figure. All these cases have now been observed for some years, several of them through subsequent pregnancies, and in not a single one has there been noticed any aberration of the sexual function (with the exception of some increase in sex feeling). Coitus, conception, pregnancy, and parturition remain unaffected by the operation, and there are no untoward effects on either bladder or rectum.

Cases of true intractable dysmenorrhœa, by which I mean those in which all medical and minor surgical treatments have failed to relieve, are admittedly uncommon, but it is in these very cases that sympathectomy is so brilliantly successful; it is therefore particularly unfortunate that a physician of Dr. Hurst's

eminence and authority should propagate such a damaging misconception of the possible sequelæ of this operation. I entirely agree with him that sympathectomies are performed too often and with too little justification; but I must again emphasise the fact that resection of the presacral nerve in women, when properly performed for proper indications, has no deleterious effect on the sex functions, including that of conception, and is generally productive of nothing but good results.—I am, Sir, yours faithfully,

Harley-street, W., April 9th. A. A. DAVIS.

SIR JOHN ROSE BRADFORD

To the Editor of THE LANCET

SIR,—The obituary notice in the *Times*, contributed by Sir Humphry Rolleston, reminds me of an interesting piece of prophecy in which Bradford and Rolleston were associated. Somewhere about 1895—40 years ago—I was sub-editing the *Practitioner* and had designed a "monthly review of the medical sciences," in which a special department was reviewed each month by one of the rising young physicians of those days. Bradford was responsible for Diseases of the Kidneys and Rolleston for Diseases of the Digestive Tract. One morning they were both in my waiting-room, where they met the late Dr. Michael Foster, an old friend of mine from San Remo and Harrogate. He came into my study first and said, "I won't keep you long as you have two men in the waiting-room whom I know. Mark my words—they are both future presidents of the Royal College of Physicians." Sir Humphry Rolleston was elected president in 1922, and Sir John Rose Bradford succeeded him in 1926.

Bradford was an excellent organiser of congresses. The tercentenary celebration of the publication of Harvey's "De motu cordis" was primarily, if not entirely, a College affair and was a great success. When the centenary of the birth of Lister came round in 1927 it was felt that King's College, University College, London University, the Royal College of Surgeons, and the Universities of Edinburgh and Glasgow were all justified in celebrating their association with the great master. But Bradford had the wise idea of proposing that the Royal Society, of which Lister had been president, was the body to take chief charge of the event. With him as chairman of the executive committee, and Sir Henry Dale as secretary, we remember what a brilliant affair the celebration was. On both these occasions—the publication of Harvey's great work and the birth of Lister—Bradford's wise imagination and excellent conduct added to the reputation of the Royal College which he served so well.

I am, Sir, yours faithfully,

April 9th. ST.C. T.

STRICKLAND GOODALL MEMORIAL

SUGGESTIONS for a memorial to the late Dr. Strickland Goodall reach us in the following communication:—

"Dr. Joseph Strickland Goodall died towards the end of last year at the early age of 59. His memory is revered by many who benefited not only by his skill but also by his great capacity for friendship and by his ungrudging and willing service. He was a man with a large and generous mind. It is therefore desired to perpetuate his memory, and we feel sure that there must be many among his professional colleagues, friends, and patients who would wish to coöperate with us. We are of the opinion that the form of memorial he would have preferred would be a lectureship and medal named after him. This lecture would embrace cardiology in its widest sense. Dr. Strickland Goodall was an examiner for the Society of Apothecaries for many years, and in view of his close association with the company we think it appropriate that the lectureship and medal should be under its auspices. The court of assistants has graciously consented to act as trustee. We should be glad if all those who feel they would like to participate would send their contributions to the treasurer, Strickland Goodall Fund, Westminster Bank, Harley-street, W.1."

The signatories are: Viscountess St. Cyres, Sir Leicester Harmsworth, Sir James Berry, Charles Carpenter, D.Sc., Mr. John Cohen (chairman of the National Heart Hospital), Prof. A. W. Sheen, Prof. J. W. Eyre, Mr. George Joseph, Dr. Russell Reynolds, Dr. Evan Bedford, Mr. Bertram Mendleson, Mr. Lambert Rogers, Dr. Maude Richards, and Dr. Jenner Hoskin.

BRITISH EMPIRE CANCER CAMPAIGN

Lord Reading presided at a meeting of the grand council of the Campaign held in London on Monday last. A grant at the rate of £350 per annum for the year 1935 was made to Sir Leonard Hill for the services of Dr. T. Reiter whilst continuing his research work on short-wave therapy in the laboratories of the St. John Clinic and Institute of Physical Medicine. A grant of £1000 per annum for two years was made to the North of England council of the Campaign, to be placed at the disposal of Prof. W. E. Curtis, of the Armstrong College, Newcastle, and Mr. F. Dickens, D.Sc., research director of the Cancer Research Institute of the North of England council, for conducting an exhaustive scheme of research in short-wave therapy. It was reported that the scientific advisory committee of the Campaign attaches much importance to this research. Further, a grant of £700 was placed at the disposal of the scientific advisory committee for a special investigation of the biological reactions of monochromatic radiations of various wave-lengths.

The grand council adopted the recommendation of its committees that it was desirable to continue to offer from time to time a prize and medal for the best essay submitted on a set subject concerning cancer research. It was decided also that the Campaign should award gold medals from time to time to those in the British Empire who had carried out and published contributions to cancer research of outstanding merit. As a result of representations by members of the provincial branches, the council has established a central propaganda committee. One of its objects will be to issue information which will enlighten the public generally about the onset of cancer, with a view to inducing sufferers to seek medical advice at the earliest possible moment.

It was reported that a largely increased number of centres have undertaken, in the present Jubilee year, to organise collections throughout the country. In the provinces May 25th has been selected for the majority of the 1700 collections, while in London July 9th has been allotted as the flag day for the metropolitan and city areas.

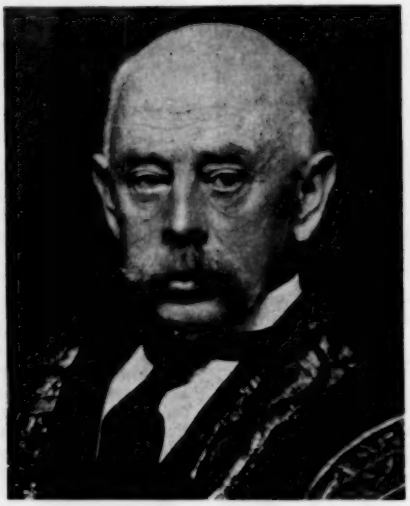
HOVE GENERAL HOSPITAL.—At the annual meeting of the governors on March 26th it was announced that the King's Jubilee will be commemorated by building a Jubilee wing. It will form part of an extension scheme now nearing completion, and will bring the number up of beds from 22 to 50, thus serving the hospital being recognised by the General Nursing Council as a complete training school for nurses. The Mayor of Hove, who presided over the meeting, mentioned that the cost, added to the sum already spent in the extension ward now being carried out, would bring the total sum involved to nearly £34,000. About £20,000 remained to be raised.

OBITUARY

SIR JOHN ROSE BRADFORD, Bt., K.C.M.G., M.D., F.R.C.P.Lond., F.R.S.

LATE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON

THE death occurred on Sunday last, April 7th, of Sir John Rose Bradford, distinguished physiologist and physician, and indefatigable worker in many important directions of scientific and medical organisation. He died, after a somewhat prolonged illness, in the house in Manchester-square, London, which he had occupied nearly the whole of his professional life. The event occurring a few days after the death of Sharpey-Schafer, his senior by some 12 years, must remind us how these two great men, though absolutely differing in career and performance, stood out as pioneers of the now generally accepted view that all scientific research which is allied to or ancillary to medicine should be brought into association with clinical practice. It was this great ideal in all Rose Bradford's work that made him accepted universally as a leader of the medical profession of particular distinction.



[Photograph by Elliott and Fry

SIR JOHN ROSE BRADFORD

John Rose Bradford was born in London in 1863, the son of Abraham Rose Bradford, Deputy Inspector-General of Hospitals, R.N., by Ellen, daughter of Nicholas Littleton of Saltash. He was educated at a school in France and at University College school and the medical school of University College Hospital, where he entered as a student in 1882, when the staff comprised such notable men as William Jenner, Russell Reynolds, Bastian, Schafer, Gowers, Ringer, and Marcus Beck, the last two of whom were Bradford's particular heroes. He graduated as B.Sc. Lond. in 1883 and as M.B. in 1888, proceeding in the same year to the D.Sc. and in 1889 to the M.D. degree, when he obtained the gold medal for medicine. In 1892 he took the diploma of M.R.C.P. Lond. and was elected F.R.C.P. five years later. He served the house appointments, and was for a time demonstrator of anatomy in the school. In 1890 he became assistant physician to the hospital and was shortly after elected to the same position at the National Hospital, Queen-square, while he served for a period on the staff of the Seamen's Hospital, Greenwich.

Such was the extended clinical field open to Bradford from the start, but he had made a great mark in physiological work before obtaining his first medical degree. He published physiological papers with Bayliss on the electrical phenomena accompanying secretion in 1885 in the *Proceedings* of the Royal Society, and these were followed by contributions to the *Journal of Physiology* on the innervation of the renal blood-vessels and on the action of certain drugs on the kidney. Between 1889 and 1892 he contributed to the *Proceedings* of the Royal Society papers on the innervation of the pulmonary blood-vessels in association with H. P. Dean, and with Bayliss on the innervation of the vessels of the limbs, and in the latter year he wrote in the *Journal of Physiology* a paper on partial nephrectomy and the influence of the kidney on metabolism, while he contributed to the Royal Society a preliminary note on the effect on nitrogenous metabolism of removing portions of the kidney. In recognition of the quality of these researches he was elected F.R.S. in 1894, at an unusually early age.

In 1895 Bradford was elected superintendent of the Brown Institution, where he continued his physiological investigations. He held this post for eight years, and at the beginning of his long association with the Royal College of Physicians he recorded his experiences thereat. For when he was, in 1897, appointed Goulstonian lecturer at the College he took as his subject the pathology of the kidney, and the lectures were founded on work done at the laboratory of the Brown Institution. He traced the results of partial and complete nephrectomies on the general metabolism of the body, and on the composition of the urine, describing in conclusion the phenomena of uræmia as seen clinically. The lectures illustrated his invariable attitude towards the problems of scientific research—any lessons to be learnt from them should be interpreted for the medical profession from the clinical aspect. He had already published an excellent little textbook, entitled "Clinical Lectures on the Urine"; the lectures had appeared in serial form in the *Clinical Journal* and while covering the ground with great clearness and accuracy, brought Bradford's laboratory work actually to the bedside. Indeed all Bradford's contributions to medical literature showed this practical bent. He wrote the articles in Allbutt's "System of Medicine" on the General Pathology of the Renal Functions and on Nephritis, and in Allchin's "Manual of Medicine" those on Rabies, the Mycoses, and Diseases of Ductless Glands. The essays were in each case simple and practical, the results of personal investigations being collated with those of clinical experience, the author's own, and that of much trustworthy authority.

In 1897 Bradford became full physician at University College Hospital, and professor, first of materia medica and later of clinical medicine. In private practice he displayed his great qualities, using a wide range of knowledge and never allowing theoretical considerations to sway practical judgment. His original mind was displayed in clinical medicine as it had been in physiology; and he became a great clinical teacher because his interpretation of the facts of a case was accurate and his presentation of them clear and ordered. He commenced unfolding a case commonly by a few tactful questions asked of a clinical clerk, and the case was finally displayed in a wonderful way, the essential points standing out clearly against a background of less important details. At such times diagnosis seemed very simple and self-evident. Honesty was an essential part of his nature, and strict adherence to the track, as he saw it, characteristic of his discourses, since he taught what

he saw in the patient and freely illustrated his statements by reference to cases which had come under his own personal observation. Orderliness and clearness of thought, originality in classification into clinical types, sound judgment, and avoidance of irrelevance were thus characteristic of his teaching. His memory was very retentive and the facts of medicine so precisely and clearly arranged in his mind that he had no need of notes to aid him; in fact he used to say that looking at notes worried him, and when lecturing at University College he went through the whole of medicine without a note of any kind.

His labours in the field of experimental physiology were discontinued after 1899, and his time was fully occupied, apart from work in the wards or the consulting-room, by the numerous public duties which he undertook. At the Royal Society he was foreign secretary in 1907–1908 and secretary from 1908–1915, his full term of office not being completed owing to his appointment in 1915 as a consulting physician to the army with the B.E.F. During his secretaryship there were organised by the Society on behalf of the Government special commissions on Mediterranean fever and on sleeping sickness, with the activities of which he was closely concerned. His services were in constant demand as an examiner, a post for which he was so excellently fitted, and in this capacity he acted for the University of London, the English Conjoint Board, and the Indian Medical Service.

At the Royal College of Physicians of London he played a prominent part from the day of his election as a Fellow and his selection as Goulstonian lecturer. He was Croonian lecturer in 1904, Lumleian lecturer in 1920, and Harveian Orator in 1926, the year of his election to the presidency of the College. He served this office for five years and was an admirable president, exercising his gifts of accuracy, retentive memory, and fairness to the appreciation of everyone. The tercentenary celebrations in honour of Harvey occurred during his term of office and were carried through with great success. Reference has already been made to his Goulstonian lectures, and in his subsequent addresses he displayed the same general wisdom and special accomplishment, maintaining in these deliveries his great ideal that research should have for its object the advance of clinical medicine. In the Croonian lectures on Bright's Disease and its Varieties, there was a certain sequence to the Goulstonians, especially when the lecturer was discussing the excretory activities of the kidney. Bradford, the most fair and courteous of opponents, could be emphatic when emphasis was needed, and he always felt that it was needed when protesting against interference with the work of research by prejudiced observers. In these lectures he took occasion to emphasise the similarity that had been found to exist between experimental results and the processes seen in the human subject as a result of renal disease, thus justifying the prosecution of experimental inquiry. In the Lumleian lectures, delivered after the war, Bradford narrated his clinical experiences during the war, when with the rank of major-general and as consulting physician to the B.E.F. he was present throughout the campaign in France and Flanders. After useful reflections upon problems in connexion with wastage, due or partly due to battle casualties, he dwelt on the occurrence in the armies of nephritis and polyneuritis and on the result of gunshot wounds of the chest. In the Harveian Oration, delivered just before his election as president of the College, he expounded eloquently the debt which medicine owes to the experimental methods introduced by Harvey. Harvey's greatness he found to be shown by the fact that, notwithstanding the conditions prevalent in his time, he was able so to free himself from the traditions of the past, and from the influence of authority and dogma, as to lay the foundations of modern science by his insistence on the fundamental importance of experiment and of accuracy of observation. This series of lectures, ranging over more than a quarter of a century, demonstrated Bradford's persistent point of view, that only through intensive inquiry, relentless scrutiny of findings, and testing of theories can advances be brought about.

Bradford, until shortly before his death, was senior medical adviser to the Colonial Office. He was also extremely well posted in all the problems, social, charitable, and material, comprised in the organisation of the voluntary hospitals. And his long connexion with the King Edward Hospital Fund for London formed another call upon time which seemed ever inexhaustible. He was chairman up to a few days before his death of the executive committee of University College, and his interest in University College Hospital was maintained in the most intimate way until the end of his life.

But those who may have regarded Bradford either as an unbending man of science or a distinguished official would be surprised to know how complete his familiarity was with the conduct of medical practice and with the material and ethical difficulties arising in connexion with it. He was for many years president of the London and Counties Medical Protection Society. He presided regularly at the meetings of the Society and entered carefully into the claims of all contending parties, and although his ideals of professional behaviour were very high he was sympathetic with those whom ignorance or indiscretion had placed in a difficult position, and leaned to the side of mercy in his judgments.

Bradford was appointed K.C.M.G. in 1911, was made C.B. and C.B.E. at the termination of the war, and in 1931 was created a baronet. He was a corresponding member of American and French medical societies and received honorary degrees in science, medicine, and law in the universities of Cambridge, Edinburgh, Dublin, Durham, and Christiana. Never was recognition more fully merited.

Sir John Rose Bradford married, in 1899, Mary, daughter of the late Thomas Ffoulkes Roberts, J.P., and niece of the well-known physician and authority on renal disease, Sir William Roberts. There were no children of the marriage. Lady Bradford followed her husband abroad almost immediately after he was appointed consulting physician to the B.E.F., and then became an unofficial letter-writer for the sick and wounded. What beautiful work she did she has narrated in an unassuming little book "A Hospital Letter-writer in France," from which it can be gathered that in communicating with the relatives of the wounded soldiers she did much more than send greetings from the patients to their friends, but included an accurate medical report of the condition of the patients at the time of writing. The sympathy of all will go out to Lady Bradford in her great loss.

Sir Thomas Barlow writes: "By the death of Sir John Rose Bradford, London has lost one of its worthiest physicians and ablest teachers of the science of medicine. I first got to know him when he came 'across the way' from University College to the Hospital. He soon gained the esteem of his teachers by his quick apprehension of the interpretation of physical signs and by the accuracy of his

reports. He was an admirable house physician, always enthusiastic and alike indefatigable in ward, casualty and post-mortem room in carrying out the instructions of his chief, Dr. Ringer.

"It was during this period that Bradford made some noteworthy investigations on acute severe pernicious anæmia. He will, of course, be specially remembered by his researches on the functions of the kidneys and notably in relation to the removal of varying amounts of kidney substance. He himself considered that his best research work was concerned with electrical changes in salivary gland and other gland secretions, and collateral to these must be placed his investigation on the vaso-motor nerves of kidneys, lungs and limbs. It should also be mentioned that, stimulated by his friend, Sir Michael Foster, he worked out some important points in the anatomy of the trypanosomes of sleeping sickness.

"Early in his career Bradford was awarded a scholarship by the Grocers' Company for original scientific research. His relations with the Company were always most cordial, and later in life he was appointed their adviser on grants to be made for science research. He was elected assistant physician to U.C.H. at the early age of 26, and in due course full physician, and was appointed successively professor of materia medica and therapeutics, professor of systematic medicine and lecturer on clinical medicine. Both as lecturer and as clinical teacher, Bradford was lucid and terse, and developed his expositions on a scientific basis. He had an accurate and well-trained clinical memory and was able to recall details of patients' symptoms in a way which astonished his auditors. He established a warm personal relationship with his students and especially with his house physicians and clinical clerks, with many of whom he retained an abiding friendship till the end of his life.

"To those who met him casually, or only officially, Bradford's manner, in his younger days, though courteous, appeared somewhat cold and reserved. He found it difficult to maintain even an outward semblance of friendliness to those who fell short of his own fine standard of mental and moral integrity, but with riper years he became, not less shrewd in judgment, but less trenchant in criticism. This occasional austerity of manner disguised a very tender heart, and anyone in pain or trouble could be sure of enlisting his unremitting sympathy and help, as was evidenced by the readiness with which his colleagues, former students and nurses appealed to him for counsel when they or their belongings fell ill.

"His friendships, both with men and women, were an important element in his life, and in the company of those whom he really knew, whether at home or in travel, or when entertaining his shooting friends at Bryn, he gave rein to his bantering but kindly humour, and was truly the good companion.

"He had many interests outside his profession, and was a keen traveller, though his activities in that direction were limited by his sense of duty to his wife's estate and the welfare of the tenants. He was a good ornithologist, had a sound working knowledge of marine zoology, and was an interested Fellow of the Zoological Society. His married life was exceedly happy, and Lady Bradford, herself an able botanist, was a perfect comrade, both in his working life and in times of leisure.

"Bradford's patience and fortitude during his last illness were beyond praise. His integrity, his devotion to duty and his courage recalled the virtues of the Roman Stoic, but his kindliness, his love of fair play and his generous appreciation of other people's good work were characteristic of the English Christian gentleman, and his genius of friendship will always keep his memory green among those who loved him and worked with him."

WALTER GAWEN KING, C.I.E., M.B., C.M. Aberd.

LATE SANITARY COMMISSIONER OF MADRAS AND BURMA

Colonel Walter King, I.M.S., who died in London on April 4th in his 84th year, occupied a position so important in Indian preventive medicine that he has been styled the father of public health in India, and his claim to the title was a substantial one.

Walter Gawen King, the son of the late Mr. J. H. King, of Kineton, near Warwick, received his medical education at the University of Aberdeen. He graduated there in 1873, and immediately entered the Indian Medical Service. He served first with the 5th Burmah Regiment, now the 90th Punjabis, and then as a civil surgeon filled a long series of important posts in Madras. He was professor of physics in the Presidency College, and of hygiene in the Madras Medical College, special sanitary officer to the city, superintendent of the government lunatic asylum, and inspector of vaccination. In 1894 he was appointed sanitary commissioner to the government of Madras, a post which he filled for 11 years. While in Madras he received the special thanks of the government for services rendered during the famines of 1876–77 and 1896–97, and in 1903 the government named after him its provincial laboratories, the King Institute of Preventive Medicine. In 1906 he became sanitary commissioner of Burma, and was for four years inspector-general of civil hospitals in Burma. During the war he acted as assistant director of medical services, A.M.S. to the Western command, and received the commendations of the Secretary of State for War for his valuable services.

King was undoubtedly one of the greatest of the members of the I.M.S. He was the first to insist on the necessity for separate departments of public health in the Indian provinces, and it is largely due to his powerful advocacy that the sanitary commissioners, now known as directors of public health, acquired positions of independence—previously they had been subordinate to the administrative officers of the provinces.

Colonel R. H. Elliott sends us the following outspoken comment on the position King won and maintained so well. "When," he writes, "in 1895 I first met King he was newly installed sanitary commissioner to the government of Madras, and the position was a difficult one because sanitation was by this appointment taken away from the control of the surgeon-general of the government of Madras and made a more independent appointment. King now fell directly under the government, and was independent of the surgeon-general. District medical officers in India had been formerly not only responsible for the supervision of the hospitals, but also for the sanitation of their districts. In the former capacity they were subordinate to the surgeon-general and in the latter to the district commissioner. The arrangement had worked well in old and sleepy days when sanitation was looked on somewhat as a fad. King's appointment upset all past ideas. He was obviously determined to do something, and a big something at that, for the people submitted to his care. The control of small-pox, of cholera, and of other diseases incidental to the movement of crowds during religious festivals was to King a live issue, the tackling of which in a practical manner was bound to bring great results in its train. There was an inevitable

clash of personalities under the transference of responsibilities, and King went straight ahead and with the virtues of an enthusiast was regardless of consequences. Such was his vital force and so sound and true were his ideas that despite difficulties he won through. He knew what he wanted, and he was determined to get it." Colonel Elliott adds, "Not long ago he sent for me, being convinced he was getting glaucoma; characteristically he faced the worst and asked to be told the truth. King never was a clinical man, and his diagnosis was quite mistaken. When I saw him, old, broken in health, and bedridden, he was controlled by the courage of his early days. India owes Walter Gawen King a debt which it can never repay."

Colonel H. H. King, late superintendent of the King Institute of Preventive Medicine at Guindy, Madras, writes: "The institute perpetuates King's name and his devotion to public health. It was set up by the Madras government in 1903 in response to his wishes when sanitary commissioner of the presidency. It started as a vaccine lymph depôt, but gradually increased its activities and now covers a wider field than any other laboratory in India. It serves the whole presidency as a manufactory not only for vaccine lymph, but also for all bacterial vaccines except plague, both preventive and therapeutic. It is in addition the chief bacteriological laboratory in the presidency, and the only public health one, in which latter capacity it includes the work of public analysis under the Foods and Drugs Act. Finally, it is a research laboratory from both clinical and public health aspects, and I stress its many-sidedness because to have all these activities centred in one place gives Madras the advantages of concentration and economy in administration. The extent of the work has grown enormously, and though this expansion has occurred mainly since Colonel King's time, the government of Madras will ever remain indebted to him for his energy as founder. As I have recently been director of the institute, I may be permitted, as representing it, to offer the sincere condolences of myself and of the whole staff of the institute to Colonel King's family—their loss is ours, and indeed that of all India."

These tributes to the work and the personality of Colonel W. G. King illustrate the force for good of the man, and make us understand how those actually engaged in sanitary administration in India regarded him with such esteem.

JOSEPH SHARDLOW, M.B., M.R.C.S.

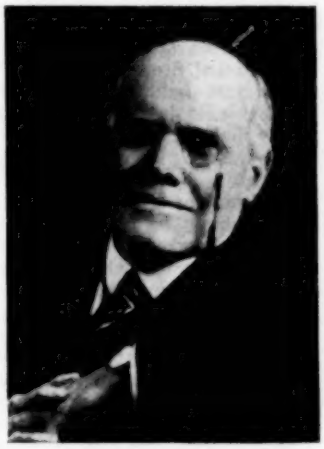
THE death of Dr. Shardlow, who was over 30 years on the honorary staff of the Sussex Maternity Hospital, occurred on April 1st after a long illness. The severance of his many connexions, professional and public, with Brighton life makes his death felt as a public loss. He received his medical education at University College Hospital, took the English double diploma in 1896, and graduated as M.B. Lond. in the following year. He was a successful student, was house physician at his hospital and a demonstrator in physiology in the medical school, and was for some time resident medical officer at the East London Hospital for Children. At the close of this appointment he entered medical practice in Brighton, and from the beginning made maternity work a specialty. In 1902 he was elected to the staff of the Sussex Maternity Hospital, a position which he held until his death, being for the last ten years the senior member of the staff. He was also one of the medical officers of the Brighton and Hove Dispensary, where his tenure of office was nearly as long as at the Sussex Maternity Hospital. He was medical officer for the Southern Railway, and in connexion with this post he received a presentation clock on behalf of the Southern Railway ambulance class. He was a frequent lecturer on behalf of the St. John Ambulance Brigade, and for many years acted as an examiner for the police. Dr. Shardlow was unmarried, and died in his 64th year.

SIR JOHN COLLIE, C.M.G., M.D. Aberd.

CONSULTING PHYSICIAN TO THE MINISTRY OF PENSIONS

Sir John Collie, who died at his home in Porchester-terrace on April 4th at the age of 74, was long recognised as the most distinguished investigator of cases of suspected malingering. But he did much more than this; he put medico-legal practice on a sound basis of experience.

Robert John Collie was the fourth son of James Collie, advocate, of Pitfodles, Co. Aberdeen. He went to school and college at Aberdeen, studied medicine there and at Edinburgh extramural school, and qualified in 1882, taking the M.D. Aberd. in 1885. On qualifying he spent some time in resident appointments at Edinburgh and Sunderland, staying on for six years in private practice among the industrial population at the latter place.



[Photograph by Hay Wrightson.
SIR JOHN COLLIE

When he decided to try his fortune in London, he at once began to undertake work of a public character. In 1900 he became associated with the London School Board as medical superintendent of its ambulance and nursing classes; two years later he was made a medical examiner to the London County Council, and shortly after to the Metropolitan Water Board, appointments which he held for thirty years or more—the latter until the time of his death. Much of this work consisted in assessing the fitness of candidates for employment, more, perhaps, in deciding whether sick employees were fit for return to work and whether statements as to disability from accidents were well founded. Problems of return to work after accidents or sickness were frequently under discussion with doctors, with lawyers prepared for litigation, and with patients who were lacking in the will to work, and in these various conditions Collie's almost uncanny skill in reaching the truth became famous. Although he had to deal with malingering in many forms—his experience led him to believe that 8 per cent. of the patients he examined were distinctly malingerers—he frequently maintained that a vast proportion of what was usually regarded as malingering was in truth psychological; what the patient most needed was help over a dead point. The methods he evolved of eliminating the work-shy and the skrimshanker he did not keep to himself but embodied in a treatise

on malingering which first appeared in 1913 and was further elaborated in 1917, when an important chapter appeared on the "Return to Work," in which Collie emphasised not only the desire to shirk but the unwisdom of reinstating a man on wages he is not yet capable of earning. In many cases, he would say, the right answer to "Is A.B. a malingerer?" is "A.B. is really physically fit, but he requires that push towards usefulness which many men off work require. He has not any real incapacity, but he has a feeling of inability caused by nervousness, all of which could be overcome by work. He is brooding over his recent injury, and the compensation he is receiving takes away the stimulus to work. Half wages mean semi-starvation, and have a bad physical and moral effect."

Collie's share in framing the Workmen's Compensation Acts was one of his outstanding merits. He assisted the departmental committee in deciding the regulations for industrial diseases in the Act of 1906. He took the view that a medical assessor should be present in all cases where medical evidence was to be given about facts in dispute, and he obtained insertion in the Bill of 1923 of a clause giving either party the right to claim that a case should go before a medical referee.

Some idea of the extent of Collie's experience of occupational fitness may be gathered from a report, issued just before the war, on 31,000 consecutive medical examinations over a period of nine years, nearly half of which were made on candidates for employment. It was natural that he should be nominated by the Government on the advisory committee for the National Insurance Act of 1911, and although he only held the position for a year or so, it awakened an interest in the problems of insurance practice which he never lost. It would be tedious to enumerate the other bodies which used his services at this time in medical examination—assurance societies, shipping federations, or metropolitan police divisions; he was medical referee for the borough of Finsbury, a member of the Insurance Committee for London, and Home Office referee under the Workmen's Compensation Act. It could not be expected that medical mistakes were never made, but they were very exceptional, and Collie's skilled work for metropolitan authorities must in the aggregate have saved vast sums of money in wages, while rescuing multitudes of patients from the ill-effects of unnecessarily protracted invalidism. In 1908 he was put on the commission of peace, and in 1912 he was knighted. The war found him congenial occupation. He became a major, with temporary rank of colonel, in the R.A.M.C., and president of a special medical board for nervous disorders. He was one of the first to recognise that the emotional suppression cultivated by every good soldier predisposes to nervous strain, and he was as active in finding homes of recovery and suitable light occupation for shell-shocked men as in arranging immediate psychotherapeutic treatment behind the lines. For this service he was made C.M.G., and appointed director of medical services to the Ministry of Pensions.

Of Sir John Collie's personal qualities he has made it easier to write by saying of himself: "I have never been in the position of the man of whom everyone speaks well—few men have been so constantly abused for so long a time." This was, he thought, the inevitable result of conscientious performance of duties such as his. The feeling was no doubt accentuated by the fact that he was generally on the side of the angels and did not often represent what might be called the under-dog. A personal friend writes: "It would, perhaps, be not quite correct to describe Collie as a typical Aberdonian Scot, but he had a dogged honesty of mind and a contempt for humbug. He was courageous and fearless. A certain combativeness made him a 'bonnie fechter'; but this also made him somewhat heedless at times of the effects of his actions. His special subject made him a close student of human nature, especially that of the working man. This brought him much into contact with chicanery and fraud, but he had real sympathy for the genuine sick and a kindly eye for the man who honestly wanted to get back to work. He told me, however, that, for all his experience, he often found the mentality of the artisan difficult to fathom. Although he entered Parliament for a Glasgow division, I doubt whether politics really attracted him. He had a simplicity of outlook upon public affairs which contrasted strangely with his acknowledged shrewdness in his special métier."

All his life Collie had an urge to write. He had a lucid and unaffected style, and a vigorous and incisive way of making his point. Early in his life he collaborated with Dr. J. D. C. Mortimer in a book on "Nursing at Home," and with Dr. F. C. Wightman in little handbooks on "First Aid to the Injured and Hygiene and Health." Later he wrote (apart from malingering) on medical evidence and the law of compensation. A year or two ago, as chairman of the Paddington health committee, he brought out a report on infant mortality in the borough which contained evidence of skilled investigation. Quite recently he induced a team of writers to make up a volume on "Recent Progress in Medicine and Surgery."

Sir John Collie was twice married. In 1886 he married Jessie, daughter of John Edgar, of Locharwoods, Dumfriesshire, and after her death in 1928 he married Lady Arrol, daughter of Mr. James Robertson and widow of Sir William Arrol. He leaves a son, Arnold Edgar, who is qualified to practise both law and medicine.

Mr. SHEPHERD DAWSON, D.Sc., who died on March 27th, was consulting psychologist to the Royal Hospital for Sick Children, Glasgow. Dr. Dawson held a prominent position amongst psychologists, having been chosen to occupy the position of president of the psychology section of the British Association at the Aberdeen meeting in 1934. His address on that occasion was reviewed in our columns at the time. Although not himself a member of the medical profession he was familiar with the study of psychological problems associated with disease in childhood, and for many years he investigated the effect of pathological processes on the intellect. The results of this investigation were embodied in a series of papers which appeared in the Archives of Disease in Childhood, and in a special report to the Medical Research Council. Last year he was invited to address the Royal Medico-Chirurgical Society of Glasgow on Disease and Intellect. He was something of an authority on the use of the statistical method, and his book "An Introduction to the Computation of Statistics" has proved of great help to workers in this field. A man of charming personality, ever ready to be of assistance, his early death is a serious loss to his colleagues, whose sympathy goes out to his widow and daughter.

MEDICAL NEWS

University of Aberdeen

On April 3rd the honorary degree of LL.D was conferred on Lieut.-Colonel A. T. Gage, I.M.S. (retd.), formerly director of the Botanical Survey of India and superintendent of the Royal Botanic Gardens, Calcutta (*in absentia*), and on Prof. J. C. G. Ledingham, F.R.C.P., F.R.S., director of the Lister Institute, London. Other degrees and diplomas were afterwards conferred as follows :—

M.D.—*Hugh Livingston and John MacLeod.
* Commended.

M.B., Ch.B.—G. M. Stephen (first-class honours); W. G. Mackinnon and E. G. G. Rhind (second-class honours); L. F. C. Berlinguet, William Burns, N. J. Craig, W. R. Darnley, Robert Fraser, W. R. Gauld, J. P. B. Gill, Evelyn W. Glennie, S. T. G. Gray, R. W. B. Greig, J. S. Johnstone, A. M. Keith, J. McI. D. McIntosh, Elizabeth Martin, P. L. Masor, William Michie, R. B. Rait, A. I. Ross, J. S. Simmers, R. S. Slessor, Marie S. Sutherland, and Alexander Watt.

D.P.H.—W. F. Gapper and Sheila Thomson.

University of Birmingham

Dr. J. S. M. Connell has been appointed lecturer in applied anatomy, Dr. R. E. Jones lecturer in bacteriology and assistant bacteriologist in the public health laboratory, and Dr. Fritz Jacoby research assistant in tissue culture and assistant lecturer in histology.

Research into Short-wave Therapy

The Medical Research Council have agreed to act as trustees in administering a benefaction of £4000 provided by the Stock Exchange Dramatic and Operatic Society and named in honour of the secretary of the society, Mr. Hugh S. Quekett. The purpose of the gift is the promotion of research into the value of short-wave radiation in the treatment of disease. The money will be used by the Council to meet the cost of assistance and special apparatus in experimental and clinical investigations to be made at the London Hospital under the direction of Prof. D. T. Harris, Dr. E. May, and Sir Robert Stanton Woods.

Welsh Board of Health

Dr. Nancy Gwendoline Howell has been appointed woman medical officer of the Welsh Board of Health. A former student of University College Hospital, she has for three years been assistant medical officer of health for Acton. As the only woman medical officer of the Board she will be especially concerned with maternity and child welfare service.

Liddle Prize at the London Hospital

This prize, which is offered by the college board of the London Hospital under the will of the late Dr. John Liddle every three years, will be awarded in 1936 for the best essay on the relation of pregnancy to diseases of the kidney, excluding infections of the renal tract. Particulars will be found in our advertisement columns.

British Medical Association

Katherine Bishop Harman Prize, 1932.—The Council of the Association will consider an award of this prize, of the value of £75, in the year 1936. The prize is for the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are liable to arise in pregnancy and child-bearing. Within this sphere competitors are free to select the work they wish to present. All medical practitioners registered in the British Empire are eligible to compete. Should no essay be, in the opinion of the Council, of sufficient merit, no award will be made, but the prize will again be offered in the year following; in this event the money value will be increased. Each essay must be typewritten or printed in English. It must be distinguished by a motto, and accompanied by a sealed envelope marked with the same motto, and enclosing the candidate's name and address. Essays must reach the medical secretary (to whom inquiries may be addressed), British Medical Association House, Tavistock-square, W.C. 1, not later than Dec. 31st, 1935.

Fellowship at University College Hospital

A Bilton Pollard fellowship of £650 per annum is offered to former residents at University College Hospital, London, who hold the diploma of M.R.C.P. Lond., or F.R.C.S. Eng. Particulars will be found in our advertisement columns.

Auxiliary Royal Army Medical Corps Funds

The annual meeting of the members of this society will be held at 5.15 P.M. on Friday, April 26th, at 11, Chandos-street, Cavendish-square, London, W., when the financial statement for last year will be presented and the officers and committee for this year elected.

Studentship at Guy's Hospital

The Astley Cooper studentship, which is tenable at the medical school of Guy's Hospital, becomes vacant in October of this year, and is tenable for three years. Particulars can be had from the secretary to the Astley Cooper trustees at the medical school office, and applications should reach him before May 1st.

East Ham Hospital

There is a debt of £18,000 on this hospital, which was opened six years ago, and until this is cleared off extensions cannot be undertaken. Lord Bethell has offered to give half the sum if the remaining £9000 is raised by the people of the district.

Marie Tempest Ward

A ward for members of the theatrical profession is shortly to be opened at St. George's Hospital. Miss Marie Tempest has asked that the proceeds of her jubilee matinee at Drury-lane theatre on May 28th shall be devoted to this purpose, and the ward is to be named after her.

Poplar Hospital Extension

Lord Reading recently opened the new Bernhard Baron out-patient department of this hospital. The extension has cost £25,000, half of which has been provided by the Bernhard Baron trust.

High Wycombe War Memorial Hospital

This hospital is too small for present needs and will have to be enlarged. It is proposed to double the accommodation by adding a second story and building wards over the existing ones. Of the 800 in-patients treated last year, 475 were members of the contributory scheme.

Stroud General Hospital

The income of this hospital for 1934 was £9389, which is the highest it has ever received. Over £5000 of this was raised by the penny-in-the-pound fund.

Hospital Contributions in Leicester

The Leicester and County Saturday Hospital Society received over £50,000 last year, an increase of over £1200 on the contributions for 1933.

West Suffolk General Hospital

A Jubilee appeal is being made by this hospital for £25,000 to provide a new children's ward and new paying patients' wards.

Royal Victoria Hospital, Dover

This hospital has closed the year with a balance of £33. Two new wards accommodating 20 beds each have been added, and the average cost for each patient has been reduced.

Northamptonshire Mental Institution

Sir Hilton Young, Minister of Health, has opened an extension of the Northamptonshire County Mental Institution at Berry Wood.

Bromley Hospital

This hospital is to have two new wards with balconies, one for men and one for women, which it is estimated will cost £9000. The nurses' home and the massage department will also have to be extended, and a resident medical officer will have to be appointed.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. W. A. Jolliffe to *Cairo*, and as squadron M.O.; L. F. Strugnell to *Barham*; M. B. Macleod to *President* for service inside Admiralty, and as Asst. to M.D.G.; F. C. Wright to *President* for course; and E. Heffernan to *Drake* for R.N. Hospital, Plymouth.

Surg. Comdrs. (D.) J. F. Place to *Pembroke* for R.N.B.; and W. C. Murray to *Victory* for R.N.B.

Surg. Lt.-Comdr. (D.) C. J. Finnigan to *Victory* for R.N.B.

Surg. Lt.-Comdr. J. J. Benson to *Shoreham*.

Surg. Lt.-Comdr. A. M. Pomfret is promoted to rank of Surg. Comdr.

Surg. Lt. A. K. Stevenson to *Exmouth*.

The following have been appointed by the Admiralty as Surgeon Lieutenants for short service: B. R. Alderson, M. Cay, S. C. S. Cooke, D. C. Dobson, J. M. Holford, D. W. Pratt, W. F. Richards, and R. H. A. Turner, and appointed to *Victory* for R.N. Hospital, Haslar, for course of instruction.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. C. Seeley to *Barham*.

Proby. Surg. Sub-Lt. R. T. Gaunt to *Valiant*.

MEDICAL BRANCH GRATUITIES

The Admiralty have made arrangements with the Lord Kitchener National Memorial Fund for the grant of scholarships in aid of the cost of the medical education of the sons of officers and men and ex-officers and men of H.M. Forces, on the condition that holders of these scholarships undertake to enter the Royal Navy as medical officers when qualified to practice medicine and surgery. As the cost of these scholarships is borne by naval funds, the Admiralty consider that they should be authorised to deduct at their discretion the value of the scholarship, in whole or in part, from any gratuity which may be payable to a medical officer who has entered the R.N. in accordance with his undertaking as the holder of one of these scholarships and who fails to complete 15 years' service in the Navy. Authority for this is given in a new Order in Council. No deduction is to be made from the gratuity of a medical officer who is invalided from the naval service for a cause certified by the competent medical authority to be directly attributable to the conditions of his service.

ROYAL ARMY MEDICAL CORPS

Lt. A. J. Clyne to be Capt.

TERRITORIAL ARMY

J. W. E. Webster (late Offr. Cadet, Aberdeen Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

ROYAL AIR FORCE

Squadron Leader A. A. Townsend to No. 1 Air Defence Group Headquarters for duty as Medical Officer.

Flight Lt. W. P. Stamm to No. 8 (B) Squadron, Aden.

The undermentioned Flight Lts. are granted permanent commissions in that rank: F. H. Peterson and J. L. Walsh.

Flight Lt. A. H. Barzilay is transferred to the Reserve, Class D.

INDIAN MEDICAL SERVICE

Lt.-Col. D. D. Kamat retires.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) D. A. Gibbon retires.

The Commander-in-Chief has made the following appointments with March dates: Col. R. E. U. Newman, O.B.E., M.C., as Asst. Director of Medical Services for Waziristan District, in place of Col. G. A. D. Harvey, C.M.G., who vacated on March 24th; Maj. N. Cantlie, M.C., R.A.M.C., as Specialist in Surgery, Rawalpindi District; Capt. A. F. Kennedy, R.A.M.C., as Specialist in Surgery, Deccan District; and Capt. A. T. H. Marsden, R.A.M.C., as D.A.D.P., Burma District.

COLONIAL MEDICAL SERVICE

Dr. F. Bell has been appointed Medical Officer, Tanganyika; Dr. L. F. Day becomes Medical Officer, Malayan Medical Service; Dr. F. J. C. Haslam, Director of Medical Services, Northern Rhodesia; Dr. G. H. Henry, Medical Officer, Hong-Kong; and Dr. R. R. Scott, Director of Medical Services, Tanganyika.

DEATHS IN THE SERVICES

The death occured on April 7th at Edinburgh, after a short illness, of Col. George St. Clair Thom, C.B., C.M.G., C.B.E. Born in Madras in February, 1870, the son of George Thom, LL.D., he was educated at Dollar Academy and Edinburgh University, where he graduated M.B. in 1893. He entered the Royal Army Medical Corps in 1894, became Capt. in 1897, Major in 1906, Lt.-Col. in 1915, and Colonel, Army Medical Services, in 1917. He served in the South African War, 1900–1902, was mentioned in despatches and was awarded the Queen's medal with three clasps and the King's medal with two clasps. He was D.A.D.M.S., Lowland Divn. (T.F.) in December, 1913, and later accompanied the Division to Gallipoli in the European war, and was in 1916–17 Deputy Assistant Director General at the War Office. Then he served on the Staff and as Deputy Director of Medical Services, Russian Expeditionary Force, being mentioned in despatches. He was created C.M.G. in 1916, C.B. (Mil.) 1918, and C.B.E. (Mil.) 1919. In 1924 he was appointed superintendent of the Edinburgh Royal Infirmary, and in February of this year had reached the retiring age of 65, but was asked to remain for another year. A note of appreciation of his work there appears in the letter from our Scottish correspondent this week.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, April 15th.
Odontology. 8 P.M. Mr. Harold Round and Dr. H. J. R. Kirkpatrick: Sequelæ following Injection Anæsthesia in the Mouth. Prof. W. H. Gilmour: Principles concerned in Tooth-cavity Preparation.
TUESDAY.
General Meeting of Fellows. 5.30 P.M. Ballot for election to the Fellowship.

CHELSEA CLINICAL SOCIETY.
TUESDAY, April 16th.—8.30 P.M. (Hotel Rembrandt Thurloe-place, S.W.), Mr. A. S. Blundell Bankart and Mr. Frank Romer: Manipulative Methods.

NORTH-WEST LONDON MEDICAL SOCIETY.
TUESDAY, April 16th.—9 P.M. (Regal Rooms, Regal Cinema, Finchley-road, N.W.), Dr. J. B. Mennell: Manipulation in General Practice.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
SATURDAY, April 13th.—3 P.M. (Princess Beatrice Hospital, Richmond-road, S.W.), Mr. A. J. Wilson Chamings: Demonstration on diseases of the ear, nose, and throat. (Open only to members and associates of the Fellowship.)

PUBLIC DISPENSARY AND HOSPITAL, Leeds.
WEDNESDAY, April 17th.—4 P.M., Mr. L. N. Pyrah: Tuberculosis of the Genito-urinary Tract.

GENERAL INFIRMARY, Leeds.
TUESDAY, April 16th.—3.30 P.M., Mr. Pyrah: Demonstration of Surgical Cases.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, April 16th.—3.30 P.M. (General Hospital), Dr. A. P. Thomson: Blood Pressure.

ROYAL INFIRMARY, Manchester.
TUESDAY, April 16th.—4.15 P.M., Mr H. T. Simmons: Anal Conditions.

ROYAL INFIRMARY, Dundee.
THURSDAY, April 18th.—3.15 P.M., Prof. Patrick: Cardiac Failure: Clinical Aspects. Prof. Cappell: Cardiac Failure: Pathological Aspects.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
WEDNESDAY, April 17th.—4.15 P.M. (Western Infirmary), Dr. J. G. Macgregor-Robertson.

Appointments

ATTKINS, L. C., L.D.S. R.C.S. Eng., has been appointed Dental Surgeon to the St. John Clinic, London.

BARWELL, HAROLD, M.B. Lond., F.R.C.S. Eng., Laryngologist to the St. John Clinic, London.

DOUGHERTY, F. N. B., M.B. Cape Town, Resident Medical Officer to the Royal Victoria Infirmary, Newcastle-upon-Tyne.

LESLIE, W., M.B. Lond., F.R.C.S. Eng., Senior Assistant Medical Officer (Grade I.) to St. Luke's Hospital, Chelsea, L.C.C.

MILES, EDWARD, M.B. Liverp., D.P.H., Medical Superintendent and Master of the Romford Institution.

WARD, E. M., M.B. Lond., Municipal Pathologist at Leicester.

London County Council School Medical Service.—The following appointments are announced:—

MCKEOWN, K. McC., M.D. Lond., D.P.H., Assistant Medical Officer;

SCOTT, W. A., M.D. Belf., D.P.H., Assistant Medical Officer;

WOODHEAD, B. E., M.B. Birm., M.R.C.P. Lond., D.P.H., Assistant Medical Officer; and

POOLE, F. D. S., M.B. Lond., Medical Officer and Dental Anæsthetist at King's Canadian Residential Open-air School, Hampton-hill.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Hospital for Sick Children.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.

Aberdeen Royal Infirmary.—Hon. Asst. Phys. Also Hon. Jun. Asst. Surg. to Ear, Nose, and Throat Dept.

Banbury, Horton General Hospital.—Res. M.O. At rate of £150.

Bangor, Cærnarvonshire and Anglesey Infirmary.—H.P. £125.

Bath Royal United Hospital.—Out-Patient and Cas. O. At rate of £150.

Birmingham, Erdington House.—Jun. Asst. M.O.'s. Each at rate of £200.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.

Bradford Royal Infirmary.—Two H.S.'s. Each at rate of £135.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £120.

British Legion Village, Preston Hall, near Maidstone.—Asst. to Med. Director. £500.

Burnley Municipal General Hospital.—Jun. Res. M.O. £150.

Canterbury, Kent and Canterbury Hospital.—Two Hon. Anæsthetists.

Cardiff Royal Infirmary.—Res. M.O. and Res. Surg. O. Each at rate of £200.

Chester, East Lancashire Tuberculosis Colony, Barrowmore Hall.—H.P. At rate of £150.

Chester Royal Infirmary.—H.S. £150. Also Hon. Asst. Phys.

Chesterfield and North Derbyshire Royal Hospital.—H.S. At rate of £150.

City of London Hospital for Diseases of the Heart and Lungs, Victoria-park, E.—Registrar. Also Asst. Radiologist.

Denbigh, North Wales Sanatorium.—H.P. At rate of £100.

Dewsbury and District General Infirmary.—H.S. £150.

Doncaster Royal Infirmary.—Cas. H.S. £175.

Dorchester, Dorset Mental Hospital, Herrison.—Sen. Asst. M.O. £450.

Eastbourne, Royal Eye Hospital, Pevensey road.—H.S. £100.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £150.

Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.

Glamorgan County Council.—Asst. M.O. £400.

Guy's Hospital, S.E.—Astley Cooper Studentship.

Halifax Royal Infirmary.—Res. Surg. O. At rate of £250.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. At rate of £100.

Harrogate, Royal Bath Hospital.—Res. M.O. At rate of £156.

Herefordshire General Hospital.—H.S. and Cas. O. At rate of £100.

Hong Kong University.—Professor of Obstetrics and Gynæcology. £1000–50–£1100.

Huddersfield Royal Infirmary.—Res. Surg. O. £225–£250.

Ilford Borough.—Asst. M.O.H. £600.

Inverness, Royal Northern Infirmary.—H.S. At rate of £100.

Lancaster Royal Infirmary.—Jun. H.S. At rate of £130.

Leeds Education Committee.—Asst. School M.O. £500.

Leeds, St. James's Hospital.—Visiting Anæsthetist. £100.

Leicester City.—M.O.H. £1400.

Liphook, Hants, King George's Sanatorium.—Asst. M.O. At rate of £200.

London County Council.—Asst. M.O.'s. Each £470.

London Hospital Medical College, E.—Liddell Triennial Prize. £120.

London Homœopathic Hospital, Great Ormond-street, W.C.—Two Res. M.O.'s. Each £100.

London Jewish Hospital, Stepney Green, E.—Res. M.O. and H.P. At rate of £150. Also H.S. and Cas. O. Each at rate of £100.

Manchester, Ancoats Hospital.—Res. M.O. At rate of £150. Also Med. Reg. £50.

Manchester Ear Hospital, Grosvenor-square.—H.S. At rate of £150.

Manchester, Monsall Hospital for Infectious Diseases.—Asst. M.O. £350.

Manchester, Royal Children's Hospital, Pendlebury.—Res. Surg. O. At rate of £125.

National Hospital, Queen-square, W.C.—Hon. Surg. Asst., Asst. Surg., Asst. Phys., and Anæsthetist.

Newark General Hospital.—Res. H.S. £175.

Newcastle General Hospital.—H.S. At rate of £150.

Norwood and District Cottage Hospital.—Hon. Anæsthetist.

Nottingham and Midland Eye Infirmary. Res. H.S. £200.

Preston, Sharoe Green Hospital.—Sen. Asst. Res. M.O. At rate of £150.

Princess Beatrice Hospital, Earl's Court, S.W.—Hon. Clinical Assts. Also two Hon. Anæsthetists.

Queen's Hospital for Children, Hackney-road, E.—Asst. Phys.

Reading, Royal Berkshire Hospital.—H.P. and H.S., H.S. to Special Depts., Cas. O. Each at rate of £125.

Rochester, St. Bartholomew's Hospital.—H.P. At rate of £175.,

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.

St. Alban's, Hill End Hospital, &c.—H.P. At rate of £165.

St. Bartholomew's Hospital, E.C.—Chief Asst. to X Ray Diagnostic Dept.

St. Leonard's Hospital, Hoxton-street, E.—Res. Med. Supt. £1000.

St. Marylebone, Borough of.—Two Asst. M.O.H.'s. £800.

St. Mary's Hospital, W.—Jun. Clin. Asst. for X Ray Dept. £50.

St. Mary's Hospital for Women and Children, Plaistow, E.—Res. and Asst. Res. M.O.s. At rate of £175 and £120 respectively.

St. Neots, Three Counties Hospital.—Med. Supt. £1000.

Sheffield Royal Infirmary.—Asst. Aural and Ophth. H.S. At rate of £80. Also Jun. Asst. Pathologist. £300.

Singapore, King Edward VII. College of Medicine.—$850 per mensem.

Southend-on-Sea General Hospital.—H.P. and Cas. O. Each at rate of £100.

Stockport Infirmary.—H.P. £150.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. for Aural and Ophth. Depts. Also Cas. H.S. Each at rate of £150.

Stoke-on-Trent, Stanfield Sanatorium.—Asst. Tuber. and Asst. M.O. £350.

Sunderland Royal Infirmary.—H.S. £120.

Swanley Hospital Convalescent Home, Parkwood.—Res. M.O. At rate of £200.

Truro, Royal Cornwall Infirmary.—H.S. £170.

University College Hospital, Gower-street, W.C.—Bilton Pollard Fellowship. £650.

West Bromwich, Hallam Hospital.—Res. H.P. At rate of £200.

West London Hospital, Hammersmith-road, W.—Res. Anæthetist. Also H.S. to Throat, Nose, and Ear Dept. Each at rate of £100. Hon. Asst. Anæsthetists.

Willesden Corporation.—Asst. M.O. £600.

Willesden General Hospital, Harlesden-road, N.W.—Cas. O. At rate of £100.

Woolwich and District War Memorial Hospital, Shooter's Hill, S.E.—Hon. Laryngologist. Also Surg. Reg. £100.

Worksop, Victoria Hospital.—H.S. At rate of £160.

Births, Marriages, and Deaths

BIRTHS

ATKINSON.—On April 2nd, at Welbeck-street, the wife of E. Miles Atkinson, F.R.C.S. Eng., of Bath, of a daughter.

BANKS.—On March 31st, at Gurney-drive, Hampstead Garden Suburb, N., to the wife of A. Leslie Banks, M.D. Lond.—a son.

HOUSTON.—On April 2nd, the wife of N. Roy Houston, M.D. Q.U. Ont., F.R.C.S. Edin., of Tonbridge, Kent, of a son.

MCFARLANE.—On April 3rd, at Cheam, the wife of Arthur Sproul McFarlane, M.B. Glasg., of a son.

STRÖM-OLSEN.—On April 4th, at a London nursing-home, the wife of Rolf Ström-Olsen, M.D., B.Sc., D.P.M., of a daughter.

THOMAS.—On April 4th, at Aldermaston, Berks, the wife of G. Wynne Thomas, M.B. Camb., of a daughter.

UNGLEY.—On April 3rd, at Whickham, Newcastle-upon-Tyne, the wife of C. C. Ungley, M.D., of a daughter.

WILLIAMSON.—On April 4th, the wife of James C. F. Lloyd Williamson, F.R.C.S. Eng., of Hove, of a son.

MARRIAGES

GIMBLETT—MCNICOL.—On April 4th, at St. Columba's, Pont-street, London, Charles Leonard Gimblett, M.D. Camb., F.R.C.S. Eng., Devonshire-place, W., to Audreen McNicol, daughter of Mr. and Mrs. Duncan McNicol, Holland Park, W.

DEATHS

BAYLOR.—On March 30th, at The Orchard, Ash, Canterbury, Henry Talbot Baylor, L.R.C.S.I., Major, R.A.M.C. retd., aged 76.

BODINGTON.—On April 4th, suddenly, at Halesowen, Percival James, M.B. Edin., late Surgeon-Captain, R.H.G.

BRADFORD.—On April 7th, at Manchester-square, W., Sir John Rose Bradford, Bart., K.C.M.G., F.R.S., aged 71.

COLLIE.—On April 4th, at Porchester-terrace, W., Sir John Collie, C.M.G., M.D. Aberd., aged 74.

KING.—On April 4th, at Sevington-road, Hendon, N.W., Colonel Walter Gawen King, C.I.E., I.M.S., retd., in his 84th year.

NICHOLS.—On April 4th, suddenly, at Dawlish, Lieut.-Colonel Frederick Peter Nichols, M.B. Camb., M.R.C.S. Eng., R.A.M.C. retd., eldest son of the late William Peter Nichols, F.R.C.S., of Norwich, aged 78.

PECK.—On April 4th, Herbert Peck, M.D. Edin., D.P.H., Barrister-at-Law, of Hasland, Chesterfield, in his 74th year.

SHARDLOW.—On March 31st, at Hove, Sussex, Joseph Shardlow, M.B. Lond., M.R.C.S. Eng., Captain R.A.M.C. (T.), aged 63 years.

YELD.—On April 3rd, at Edgewood, B.C., Reginald Arthur Yeld, M.D. Camb.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

PREVENTION OF THE COMMON COLD *

By Ernest Ward, M.D. Camb., F.R.C.S. Eng.
HON. SECRETARY, JOINT TUBERCULOSIS COUNCIL

First, what is the "Common Cold"? It is an endemic virus disease accompanied by coryza, pharyngitis, tracheitis, and some bronchitis, and complicated after the first infection by the growth of various other parasitic organisms, such as pneumococcus, streptococcus, staphylococcus, *Micrococcus catarrhalis*, and Pfeiffer's bacillus. In addition to the endemic there are epidemic waves, of which three main ones can be traced each year; the first in October and November—the autumn cold; the second in January and February—the winter cold; and the third in April or May—the spring cold. Of these the most severe is the winter cold, often accompanied by pyrexia and a wealth of other symptoms which have induced observers to name it influenza. There is no proof that influenza is a distinct disease, and it is just as likely that the cold virus causes a polymorphic reaction in different individuals similar to the streptococcus, which has been incriminated as the causative organism of cellulitis, scarlet fever, acute rheumatism, chorea, erysipelas, malignant endocarditis, puerperal fever, and impetigo. In any epidemics a similar train of symptoms is likely to prevail among the victims, and these may be toxic, catarrhal, gastric, enteric, colitic, cardiac, pulmonary, nephritic, and cerebral. There are other causes of coryza, pharyngitis, and tracheitis in addition to the common cold, for these symptoms are common at the onset of known specific fevers, and probably also of attacks from other parasitic organisms not yet identified.

Next, what is the origin of the immunity to colds which both prevents their incidence and terminates their attacks? The immunity is both congenital and acquired. Acquired immunity varies according to the individual attacked and the nature of the attack, but is usually short-lived, 1 to 6 months, and immunity acquired to a coryzal attack may not withstand an attack in which the prevailing symptoms are gastric, enteric, or in any other way atypical. Far and away the most important immunity is congenital, and it is on account of this that some individuals never "catch cold," and others but rarely, say every few years. A similar congenital immunity is found to all disease, and very definitely to tuberculosis, or the population would long ago have died out or been gradually replaced by an immune population.

How can colds be prevented? No doubt such precautions as avoiding chill or worry, wet feet, exposure to infection, or becoming over-tired, as advocated each autumn in all popular newspapers, have a certain limited value, but these precautions cannot always be followed by those leading a life of normal activity; so we have to consider other more strictly medical measures. Of the mechanism of congenital immunity we know nothing, and so are entirely unable to confer it artificially; research in this direction, if successful, would be of inestimable value to the community.

In the search for an artificially acquired immunity we are handicapped first, by the short duration of the natural immunity—an exemption even if successfully produced, but enduring only 1 to 6 months, would be of doubtful utility; secondly, by our lack of knowledge of the causative organism and the failure to cultivate it on artificial media. So that any vaccine therapy becomes haphazard and non-specific, depending rather on arousing latent powers, such as may occur in cases of sarcoma treated with Coley's fluid, or arthritis with T.A.B. vaccine, and protection from concomitant infections, than the creation of protection against the chief morbid agent. Observing, as do most practitioners, a large number of attempts to protect against colds by various methods of vaccination leaves an impression of disappointment and disbelief. Single cases and special methods may be noted and vaunted, but the result, when the numbers are sufficiently large to merit serious consideration, is invariably disappointing.

A host of other prophylactic measures have been advocated—physical methods, such as cold baths in the morning, bathing chest and neck with cold salt water night and morning, dietetic methods, such as the ingestion of fats (bacon and cod-liver oil) and vitamins A, B, or D, and treatment by various drugs, such as cinnamon, quinine, belladonna, camphor, citrates, and strychnine, but none of these can really be relied upon, and the same applies to local applications by brush, gargling, or nasal douche. In years when colds are scarce the advocates of all these methods will be quoting successes, but nothing will be heard from them in the seasons when colds are frequent and severe.

My own conclusion is that nothing will protect a susceptible subject from the three principal colds of the year, but it may be possible to assist him to avoid intermediate infections if the patient at risk is reasonably careful to avoid exposure to sources of infection, or excessive chilling of the skin surface, and takes cod-liver oil emulsion or some other form of cod-liver oil during the autumn and winter months.

* A memorandum prepared at the request of the Joint Tuberculosis Council.

A HISTORY OF GERMAN MEDICINE

A concise account of the development of medicine in Germany from the earliest times up to the present day is given by Prof. Haberling [1] in a little book excellently translated into English by Jules Freund. The story is well balanced, impartial, and evidently embodies a vast amount of research.

When the black death (bubonic plague) ravaged Germany in 1348 no medical help was available because the ancient writers on whom reliance was then placed mentioned no remedies, and to make matters worse foreign universities refused to admit German students for fear that they should bring the infection. Accordingly, the first German university was founded at Prague in 1248 and several more during the next century—e.g., Erfurt 1382, Heidelberg 1386, Cologne 1388, and Leipzig 1409. The course in medicine, it seems, was expensive and frequently took six years, so that students were comparatively few; and at each centre there were seldom more than two professors, one of whom taught the theory, the other the practice of medicine. Dissection of the cadaver did not become general until about a hundred years after it was introduced at Bologna in 1315. German students, however, had to make obligatory visits to the pharmacies. Owing to the uncrowded state of the profession, physicians in Germany in the fourteenth century enjoyed a high status and were exempt from taxes. In certain statutes at Nuremburg in 1350 and in Silesia it was forbidden on the one hand that physicians should prepare medicines themselves, and on the other that pharmacists should treat patients. Municipalities that could afford it often appointed physicians of their own and some of these "town physicians" became famous.

It is curious that the Germans, who have since proved such adepts at the experimental method in all its branches, should have taken so long to get going; for centuries their physicians, like those of other nations, were content to rely upon the imagination rather than set to work and find out what was actually

[1] A History of German Medicine. By W. Haberling, Professor of the History of Medicine, Düsseldorf. Translated by Jules Freund. Clio medica series. New York: Paul Hoeber. 1934. Pp. 160. $1.50.

happening in the human body in health and disease. The first of two important factors in the awakening was the invention of printing in Germany by Guthenberg. The first medical book was by an unknown author and was printed at Augsburg in 1472. In the same year at Ulm a treatise on plague by the town physician Steinhövel was printed; it ran into several editions and continued with modifications until the eighteenth century. In 1484 the first book on botany, "The Garden of Health," by Peter Shoeffer, was printed at Mainz, the birthplace of printing. According to Prof. Haberling, some of these early German herbals by physicians who are called the "fathers of botany" are extremely attractive, their illustrations being beautifully executed. The second event that led to the great awakening was the fall of Constantinople in 1483, which caused the emigration of countless Greek scholars to other parts of Europe; they brought with them precious manuscripts of the ancient physicians and taught Greek to others. In editing these ancient transcripts German physicians were prominent, and one of them, Johannes Hagenbutt (1500–58), after 15 years of labour, brought out a new edition of all the works of Hippocrates that had survived.

The first great German physician to probe deeply into the secrets of nature was Theophrast von Hobernheim, who belonged to an old aristocratic Swabian family, was born in 1493, and is known to-day as Paracelsus. His father, a learned physician, taught him how to extract drugs from the leaves, petals, roots, and stems of various plants, and also taught him how to look for metals in urine and to produce new chemical compounds by melting them and combining them with other metals. Paracelsus devoted his life to searching for new chemical compounds that would help the human body back to health after severe illness. He travelled widely and studied the characteristics of all kinds of metals and used this knowledge in the most varied diseases. His success was great, and, as Prof. Haberling points out, he created new drugs and was thus the father of the chemotherapy of to-day. In addition to his researches Paracelsus performed a great service by fighting with all his might against the healing methods of his contemporaries, who relied entirely on the books of the ancients; and he also saw the futility of the doctrine then prevalent of the "Four Humours." He set himself to build a new science founded on experience and experiment. His works were chiefly issued in German, and for that reason had a wider circulation than would have been the case had they been written in Latin, as was then usual. He met with much jealousy and persecution, and the printing of some of his best books was prohibited by the medical faculties of Leipzig and Vienna; but they were published by his followers after his death. He died at Salzburg in 1541 in his forty-eighth year. A fine and complete edition of his works in 14 volumes has recently been brought out by Paul Sudhoff, the well-known medical historian.

The early history of German surgery is also described by Prof. Haberling. In 1497 a beautiful book "Die Chirurgia," by Hieronymus Brunschwig of Strassburg, appeared; it was the first work to give an adequate description of gunshot wounds. In 1583 a good presentation of contemporary ophthalmology was published by Bartisch, who was the first to extirpate the eyeball, and also operated for cataract. He opposed eyeglasses, which had already become fashionable though they were extremely expensive, costing from 60 to 150 marks. It is interesting to note that in 1567 Johann Weier, who was physician to the Duke of Cleves, wrote a book in which he pointed out that so-called witches were not possessed by any devil or demon but simply hysterical or melancholic old women who ought to be treated for their malady and not killed as witches. The book had several editions, but failed to carry conviction.

In the seventeenth century Harvey's great book on the circulation was published at Frankfort in 1628 and was received with enthusiasm in Germany. By 1632 Rolfinck, professor of anatomy and chemistry in Jena, had publicly accepted Harvey's views, and in 1640 Conring, a professor at Helmstadt, published experiments on living animals confirming Harvey's thesis and refuting his opponents in Paris and elsewhere. Valuable support of Harvey was also given by Slegel of Jena, whose work defending him against Riolan and giving a clear description of the fœtal circulation was published in 1650.

Among German physicians of the seventeenth century are several famous names, including Schneider of the Schneiderian membrane, Peyer of the "patches" in the small intestine, Brunner of gland fame, Wirsung, who in 1642 called attention to the pancreatic duct, and Vesling, who in 1647 was the first accurately to describe the suprarenals. In 1638 Hauptman and Lange put forward a curious theory in which they ascribed the origin of disease to parasites, worms, mites, and other small living beings that developed in decaying vegetable matter. Their "Pathologica animata" contains a description of wondrous little beings discovered by them with the microscope in various tissues and fluids of the human body.

In the eighteenth century Stahl and von Haller were pre-eminent. The former produced a curious system of medicine that Prof. Haberling describes, but in his opinion Albrecht von Haller of Gottingen (1708–71) was the greatest German figure in medicine after Paracelsus both as physician and investigator until the nineteenth century. Finally, the great German investigators and physicians during the past hundred years are all described in turn in this excellent little book, which also gives an account of the scientific study of the history of medicine that is now being carried on in Germany.

TREATMENT OF ACUTE OSTEOMYELITIS

AT a recent meeting of the New England Surgical Society (New Eng. Jour. Med., Feb. 14th, 1935, p. 283), Dr. Richard H. Miller made a plea for early operation and also advocated frequent irrigation of the operation wound with renewed packings, under strictly aseptic conditions, during the acute stage. Some of the subsequent speakers did not agree with him; thus Dr. Robert B. Osgood recommended that where osteomyelitis is established and the child is very ill, an attempt should be made by means of sedatives and fluids to restore general condition and resistance before operation is attempted. He holds that in some of these cases the surgeon will do well to wait for 12–24 hours. Dr. William E. Ladd went further in advocating a delay of two or three days in certain cases, and, in his reply, Dr. Miller agreed that there were cases in which a period of restoration might be necessary. A sharper division of opinion arose concerning the value or harm of frequent dressings. Osgood expressed himself as strongly in favour of the Winnett Orr method, in which the limb is encased in plaster, and dressings are reduced to a minimum; and Dr. Lyman Allen maintained that irrigation is unnecessary and that frequent dressings in young children are actually harmful. The method to be used in localising the pus, in cases where subperiosteal suppuration has not occurred, was also discussed. Miller favoured repeated drilling of the bone with a ¼-in. burr until pus is reached, whereas Osgood considered that this carries the danger of infecting healthy bone; it is much better, he thinks, to remove a generous cap of cortex over the metaphysis and, using a strong direct light, to search gently with a probe for the focus of infection, and to determine its extent before instituing drainage. Allen believes that opening of the marrow cavity may be unnecessary, drainage being limited to a localised abscess in the cortex. Various warnings were uttered against excessively radical operation on children under two years old or in neglected cases first seen 2–4 weeks after the onset; and Ladd said that with small infants his practice at the first operation was to open the periosteum only. In this connexion

interest attaches to Osgood's opinion that in infants the infecting organism is twice as frequently a streptococcus (usually hæmolytic) as a staphylococcus, and that in streptococcal lesions in infants less complete drainage is required.

The importance of making the diagnosis on fever, pain, local tenderness, and the white cell count, without waiting for localised swelling or changes demonstrable by radiology, and the significance of strictly localised pain in determining the part of the bone affected, were clearly brought out in the discussion.

HEAD-REST FOR THE BATH

THE head-rest here illustrated meets a need which must have been felt by many bath-users—if inarticulately. Its chief appeal will be to those who like to revel in hot water, and on persons of irresolute character its influence may thus be anti-social rather than otherwise. As an aid to nursing, however, it should more than redress the balance, for there is always difficulty in supporting the head and shoulders of a patient while attending to the other operations of the bath, and the head-rest may mean that one nurse can do the work of two. Furthermore, it will allow a person to lie in comfort in a medicated bath, with the shoulders submerged—a situation not easily arranged otherwise. The model now available at the principal druggists and large stores is made of rubber and stainless steel, and should give full satisfaction; the straps are adjustable to fit any width of bath. The name given to it is the "Heavenly" bath head-rest, and it is produced by Louisa Slater, of London.

SHAKESPEARE AS PSYCHIATRIST[1]

THE psychological wisdom displayed by Shakespeare has been the subject of comment, learned and otherwise, in many countries and for many years. To the number of writers on the subject may now be added Dr. André Adnès, who occupies an important residential post in a French mental hospital. He was induced to write the book because in his opinion of all the great dramatists Shakespeare more than any other had depicted accurately the aspects of mental disorder. This fact has struck many writers medical and lay before, as is evident from the copious bibliography supplied by Dr. Adnès, which moreover is far from complete. The remarkable familiarity with the outward aspects of insanity which may be seen in so much of Shakespeare's writing undoubtedly had its origin in the fact that in the absence of institutional provision the person of disordered mind, when not actually secluded as though a criminal, lived with the general population. His divagations from the normal were therefore so well known to general observation that Shakespeare could rely upon his descriptions being readily appreciated. Dr. Adnès must be congratulated upon his accurate knowledge of his subject. "Le xviie. siècle anglais," he writes, "qui devait donner au monde médical Harvey, le physiologiste, Sydenham, clincien et thérapeute, et Willis, neuro-pathologiste, vit à son début, William Shakespeare, auteur dramatique publier des observations psychiâtriques remarquables, dont la vérité clinique n'a pas vieilli; au courant de toutes les théories scientifiques de son temps, il nous les expose au complet, sans systématisation, en les illustrant d'exemples; il nous présente encore toutes les croyances populaires et superstitieuses d'alors. Shakespeare nous apporte sur la folie et son traitement à son époque la documentation la plus complète que nous possédions." He supports this magnificent claim for Shakespeare by analyses of scores of characters from "Hamlet," and "Lear," and other protagonists of the great dramas down to the holders of quite minor rôles, and supplies in doing so a learned and well-written chapter in medical criticism.

[1] Shakespeare et la Pathologie Mentale. By Dr. André Adnès, de la Faculté de Médecine de Paris; Interne des Asiles de la Seine. Paris: Librairie Maloine. 1935.

A MAP OF LONDON FOR EASY REFERENCE

WE have received from the Lightning Cities and Road Map Co., Ltd. (20, Holborn, London, E.C.1), a plan of London, city and suburban, with a system of reference by which any place name can be found in a few seconds. The map, although it covers the whole of London, from Golders Green and Leyton in the north to Kingston and Chislehurst in the south, on a scale of three inches to the mile, is contained in a folder 9¼ by 6½ in., and need never be stretched out. The index must contain more than 16,000 names, to each of which two numbers are attached corresponding with figures at the side and top of the folder. To identify a street it is only necessary to find these figures, and to note where the verticals from these points meet on the plan. The map has been printed in five colours by the Ordnance Survey and indicates railways with red stations above and below ground, yellow omnibus and tram routes, green spaces, and blue sheets of water. It has evidently been brought carefully up to date. The map is called the Lightning Plan and is well worth 4*s*. 6*d*. It may well serve the practitioner's purpose better than an expensive atlas. It is proposed to publish on a similar principle a motor map of England and Wales on a scale of three miles to the inch in fourteen sections.

UNIVERSITIES YEAR BOOK 1935.—Sir Frank Heath's name no longer appears on the title-page of this admirable compilation, as he retired from the office of editor after preparing the five issues, 1930 to 1934. The Year Book contains no new features, but there is evidence of increasing care and promptitude in the returns made by registrars and others, and it can be counted upon more than ever for giving recent and precise information about any of the universities of the Empire, which now number seventy. The Year Book is published by Messrs. G. Bell and Sons at 15*s*., and it is accompanied by a notice that the fifth quinquennial congress of Universities of the Empire, organised by the Universities Bureau, will be held at Cambridge from July 13th to 17th, 1936.

REGISTER OF VETERINARY SURGEONS.—We have received from the Secretary of the Royal College of Veterinary Surgeons (10, Red Lion-square, London, W.C.1) a copy of the Register revised up to Jan. 1st, 1935. The total number of registered veterinary surgeons at that date was 3440, being 31 more than a twelvemonth earlier. During the year 1934 81 deaths were recorded and 6 names were removed for other reasons, which were more than counterbalanced by 115 new graduates and 3 names restored. The second list in the Register, being existing practitioners registered under the Act of 1881, is diminished to 23. The volume which is published under Parliamentary authority contains the by-laws of the College and much information about qualifying for the veterinary profession. It is to be obtained from the College for 5*s*., which is also the price of the separate volume of Acts and Charters.